

American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 97, No. 7

CHICAGO, FEBRUARY 16, 1929

\$2.00 Per Year

Do you have to cut prices to make sales?

YOU can't expect to get the most profitable installation jobs with an inferior, unknown furnace!

A few dollars here, a few dollars there, now and then a loss—that's the result of cut-price competition in cheap furnaces.

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**Four
changes
of
air
Per Hour
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the Home
or
Building**



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blades close when
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City and State A-3



Published Weekly by American Artisan and Hardware Record, Inc., 630 South Michigan Avenue, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, March 26, 1928, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.



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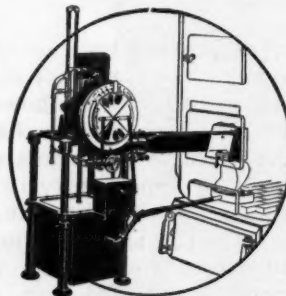
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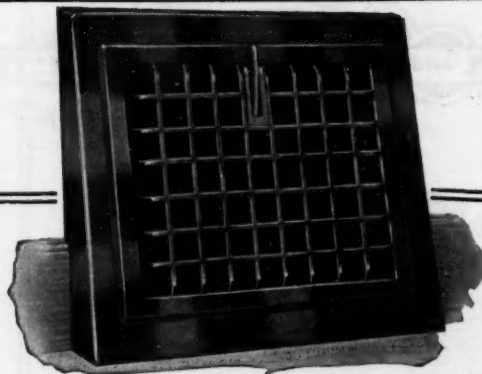
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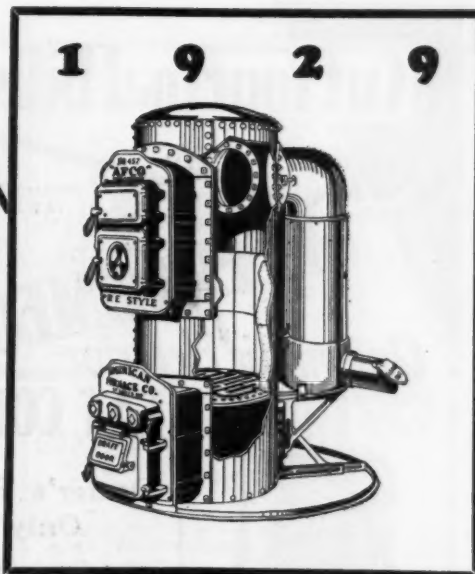
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Let us send you the "AFCO" Catalog. It is free for the asking.



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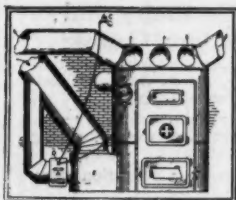
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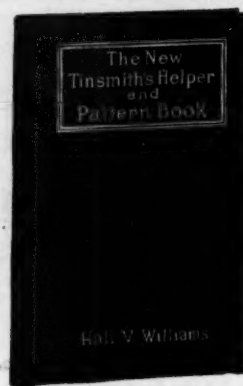
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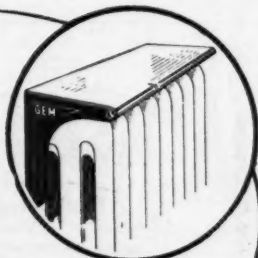
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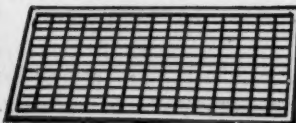
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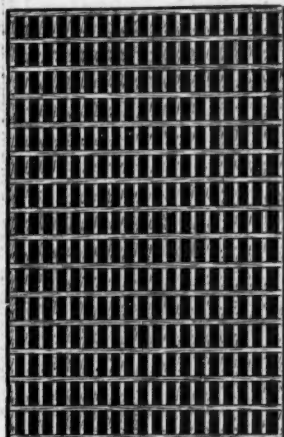
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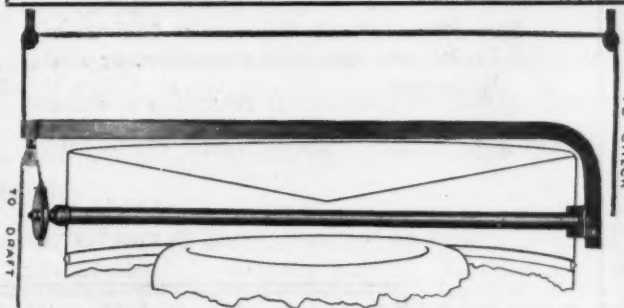
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Published EVERY SATURDAY at 620 South Michigan Avenue, Chicago

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Eastern Representatives: M. M. Dwinell, J. S. Lovingham, 156 Fifth Avenue, New York City

Vol. 97, No. 7

CHICAGO, FEBRUARY 16, 1929

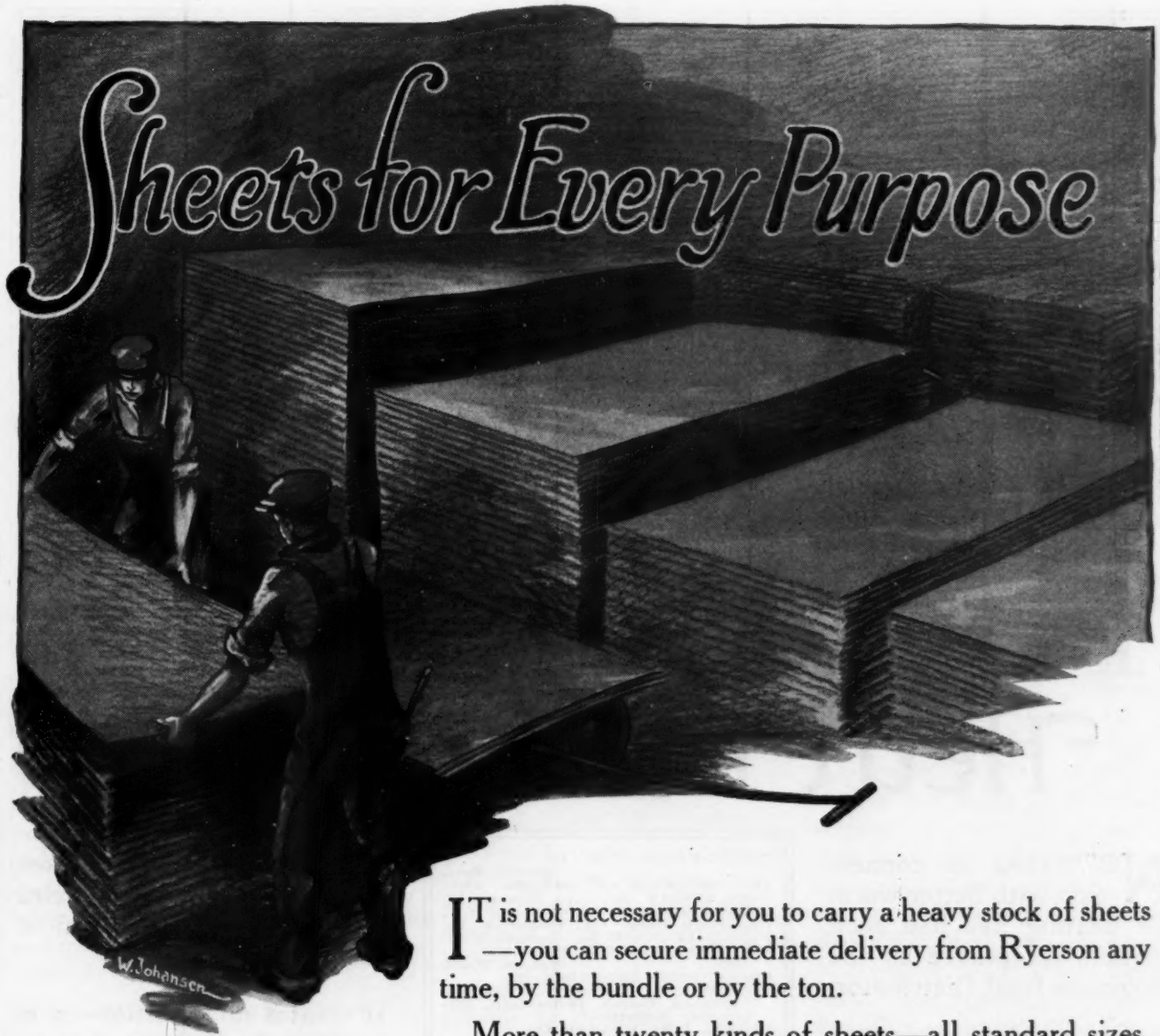
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PITY PROPERLY PLACED

I pity no man because he has to work. If he is worth his salt, he will work. I envy the man who has a work worth doing and does it well. There never has been devised, and there never will be devised, any law which will enable a man to succeed save by the exercise of those qualities which have always been the prerequisites of success—the qualities of hard work, of keen intelligence, of unflinching will.—
THEODORE ROOSEVELT.



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It is adaptable to any and every make and design of warm air furnace.

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ITS patented design makes it possible to supply extra heat to exactly the room or rooms needing it.

It creates no vibration—it is noiseless — requires no change in cold air returns—offers no interference with gravity operation and causes no back pressure. Write for full details and prices today.

Any of the Jobbers listed on this page will send you complete descriptive matter and prices. Order from them. They carry Robinson Heat Distributors in stock and will make prompt shipments.

The Robinson Heat Distributor will help you sell more and better warm air heating at a better profit.

The A. H. ROBINSON COMPANY MASSILLON, OHIO

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American Artisan

The Warm Air Heating and Sheet Metal Journal



Vol. 97

CHICAGO, FEBRUARY 16, 1929

No. 7

Should the Furnace Installer Engage in the Furnace Accessory Business?

Can Furnace Accessories Be Featured in Retail Marketing Plan?

By H. B. LLOYD, Sales Manager, Tuttle Register Dust Catcher Co.

EVERY day every furnace dealer in the country has the opportunity of assuming the sale and distribution of some new furnace accessory, such as a new humidifying device, a heat regulator, a force fan or an air filter. The question then presents itself: Should the average furnace dealer regard such as being desirable lines for him to handle, or should he regard their marketing as being matters to be left to the specialty selling organization, department or hardware store or whatever other merchandising outlets the makers of such accessories may secure?

The answer to such a question lies in an answer to the question: Does the average furnace dealer regard himself as being a furnace merchant or a mechanic? It is true that the furnace merchant is a good engineer, but it does not follow that a good mechanic is always a good merchant.

With the good furnace merchant, of course, the days of dirty windows, cluttered with rusty tin and the floor littered with a hammer here and a pair of snips there, is over. His place of business is one that adequately displays his merchandise and has the same appeal to the passerby as does any other business institution that looks to the individual as a source of his market and income. The furnace merchant is one possessed of definite plans for the advancement of his business; one constantly alert to those

means and methods that will enable him to be of greater usefulness to the community he serves.

What Are the Hopes of Furnace Men?

At this time the average dealer expects to increase business on his

C. H. Landwehr, speaking at the Buffalo convention of the National Warm Air Heating Association, laid particular stress upon the fact that the furnace installer would make more real money by devoting his time to sales than he could ever possibly do by himself working at the bench or in making his furnace accessories rather than purchasing them already made up.

This is sound business reasoning, and Mr. Lloyd in his article has tried to convey the same thought, carrying it a little further than did Mr. Landwehr. Every furnace installer can read what Mr. Lloyd said with a great deal of profit to himself.—The Editor.

standard lines in two ways. He hopes through advertising and established prestige to attract customers to his place of business and to secure prospects for new furnaces through soliciting, canvassing or other forms of personal contact. There is no reason why both of these methods should not be em-

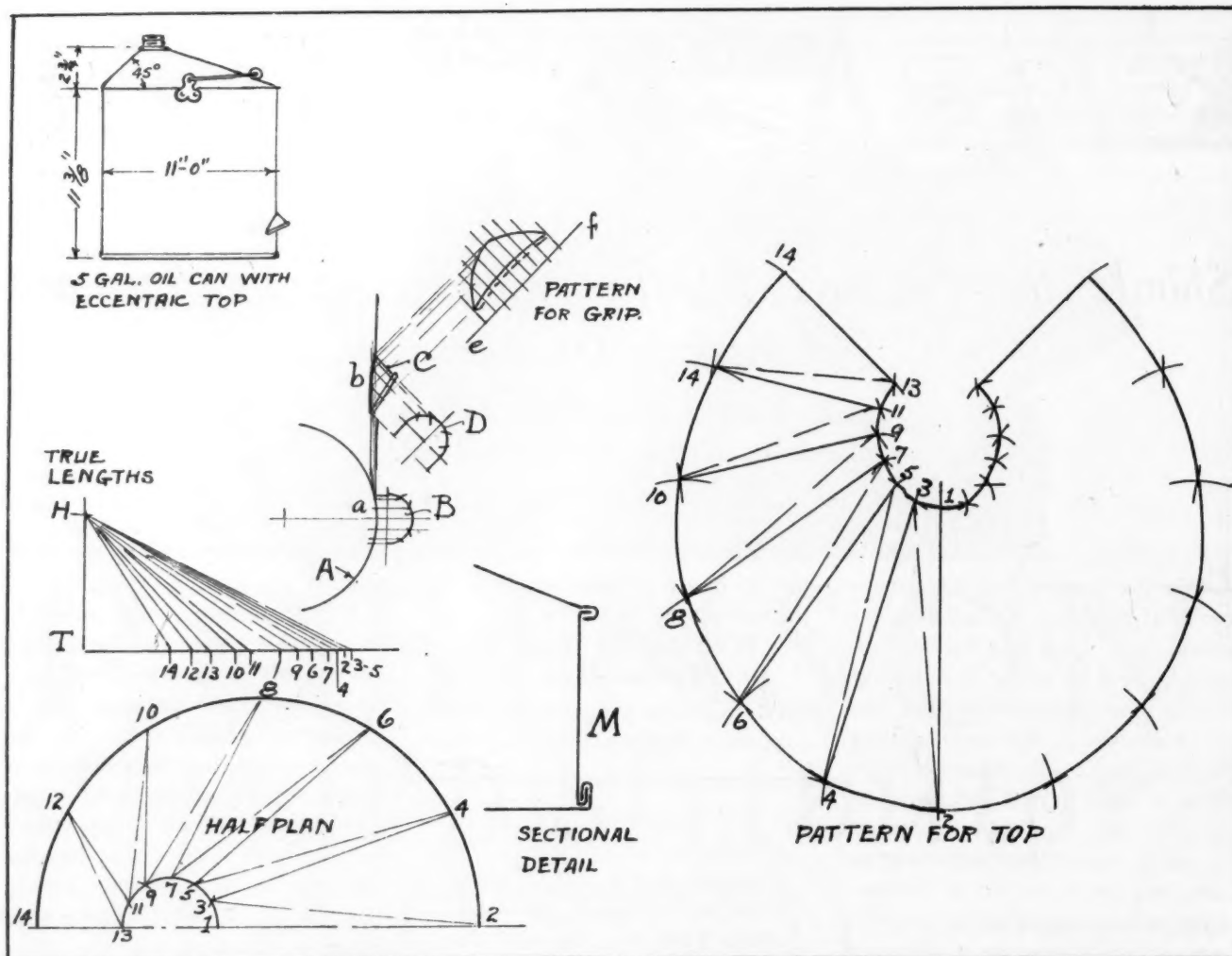
ployed effectively and at the same time.

A small specialty or one in which considerable public interest can be aroused will bring more people to a dealer's place of business than a product of greater cost. No one has ever suggested the possibility of such a thing as a "leader" for furnace dealers, such as a department or drug store might use to increase business on their slowly moving lines, but if such can become a basis for greater contact with the public and rightfully belongs in the merchant's field, there is no reason why such contact should not be established. The stocking of specialties also offers an opportunity to employ present clerical help on items that mean profit instead of such help devoting all of their time to the routine matters of keeping records of the business, writing a few letters or taking care of the telephone.

Soliciting or canvassing for business creates valuable publicity for the dealer, but as it is now carried on it is wasteful of the salesman's time, even though he may secure enough business to earn him a good wage. Instead of having to "look around" for business, a salesman should feel as if every warm air furnace owner in town is a prospect for some form of his dealer's merchandise.

Selling Accessory Equipment a Form of Canvassing

In that frame of mind he can ring
(Continued on Page 103)



Patterns for Oil Can With Eccentric Top

Constructing a Pattern for an Oil Can Having an Eccentric Top

How Layout for Handle Is Made Also Given Consideration

By O. W. KOTHE, Principal, St. Louis Technical Institute

NOW and then sheet metal workmen are requested to make an oil can that has an eccentric top where the top is 45 degrees from one side and being of a slight altitude, the back slope is of a much smaller angle. This requires the top to be developed by triangulation, while the body can be made the same as any cylindrical type, equal to the dimensions given.

To lay out the top we first draw a half plan placing the large circle equal to the diameter of the vessel and then placing the small half circle in the relation to make a 45 de-

gree in elevation. This may require top, in order to get the proper lo-drawing an elevation of the can and cation. After this divide the two semi-circles in the same number of equal parts, numbering each point so that you can walk from one point to another, as from 1 to 2; 2 to 3; 3 to 4; etc., from 13 to 14. Now to get the proper altitude we place this as H-T in diagram and then pick the triangular lines from plan and set them as T-2-3-4, etc., to 14 on the base line. By drawing lines to H we have the true lengths for developing the top.

To start the pattern draw any line, as 1-2 equal to H-2 of diagram. Then use dividers and set to one of the spaces, as 1-3 in plan, and using 1 in pattern as center, strike arcs at point 3. Next pick the space 2-4 from plan and using point 2 in pattern as center strike arc as at 4. Next pick true length H-3, and using 2 in pattern as center, cross arcs in point 3. Then pick true length H-4, and using the new point 3 as center cross arcs in point 4. Repeat in this way, walking from one point to another, describing the circumference as you go along by using

plan spaces until points 13-14 are established. After this sketch a uniform curve through all points where arcs cross and you have the pattern for the top of can. Edges for assembling must be allowed extra similar to the sectional detail M.

Another pattern that gives some men trouble is to develop the hand grip for such vessels. This is shown by detail A and D. First draw the angle of elevation C and parallel with it draw the section through the handle similar as D. Then below it draw the section of can A and then reproduce section D as B. Divide these sections in equal parts and project lines in the manner shown so that the lines from B intersect the circle A in the points and then erect them to elevation as a B. Where these lines cross those projected from B it gives the miter line of point of penetration between the grip and the body of tank. Observe that this is quite the same as laying out branch pipes of different diameters.

To set out the pattern pick the girth from section D and set off on the line e-f. Draw stretchout lines and then from each point in the miter line b, project lines so they are square with the back of grip C into stretchout. Then trace a line through different intersections giving the pattern as shown. Many men do not go to this trouble but whittle out such grips by guess which is entirely satisfactory where a person knows the shape they should take.

That is one of the advantages of studying pattern drafting, it puts such shaped patterns in a person's head for certain fittings and while a person does not need to always use the geometry for laying out still he can use the shape of the patterns to good advantage at many other times.

SHOULD INSTALLER ENGAGE

(Continued from Page 101)

a doorbell with the feeling that an immediate sale may be in the offing. In the demonstration of the specialty in question or the discussion of heat, humidity or the lack of it,

the salesman has a greater opportunity to find out whether or not the person is in the market for a repair job, a new furnace or a furnace cleaning job than if he were endeavoring to secure that information alone. In the one instance he would be endeavoring to secure specific information, while in the other the desired information is very likely to come of its own accord. In short, selling accessory equipment is a form of canvassing for major equipment that can be turned into profit in two ways and surely gets the old method of canvassing out of the "needle-in-the-haystack" class.

For an analogy, the tire and battery man has just as great an opportunity to find out whether or not his customer's car is performing smoothly as does the dealer in that particular car. When the major unit is not giving the proper performance, the owner of that unit is in the market for something. The dealer who makes a specialty of cleaning furnaces during the summer, for another instance, is in position to know more about the heating systems on which he works than a rival who hopes to secure such information from chance soliciting alone.

Discounts Offered by Accessories

Prospective profit, capital and organization necessary are surely factors to be taken into consideration also in any kind of a program for more intense merchandising effort. For the class of merchandise now being considered they are minor factors, however. Accessories generally offer greater discount than standard merchandise because of their specialty nature. The purchaser of such equipment, too, is more likely to pay cash than one who feels perforce of necessity that he must have a unit heating system of some kind. The stock of accessory merchandise can, of course, be kept within the needs of the dealer, as well as that of any other items which he may regard as standard.

An organization—the human element involved and the intangible plans for doing business—is, easy

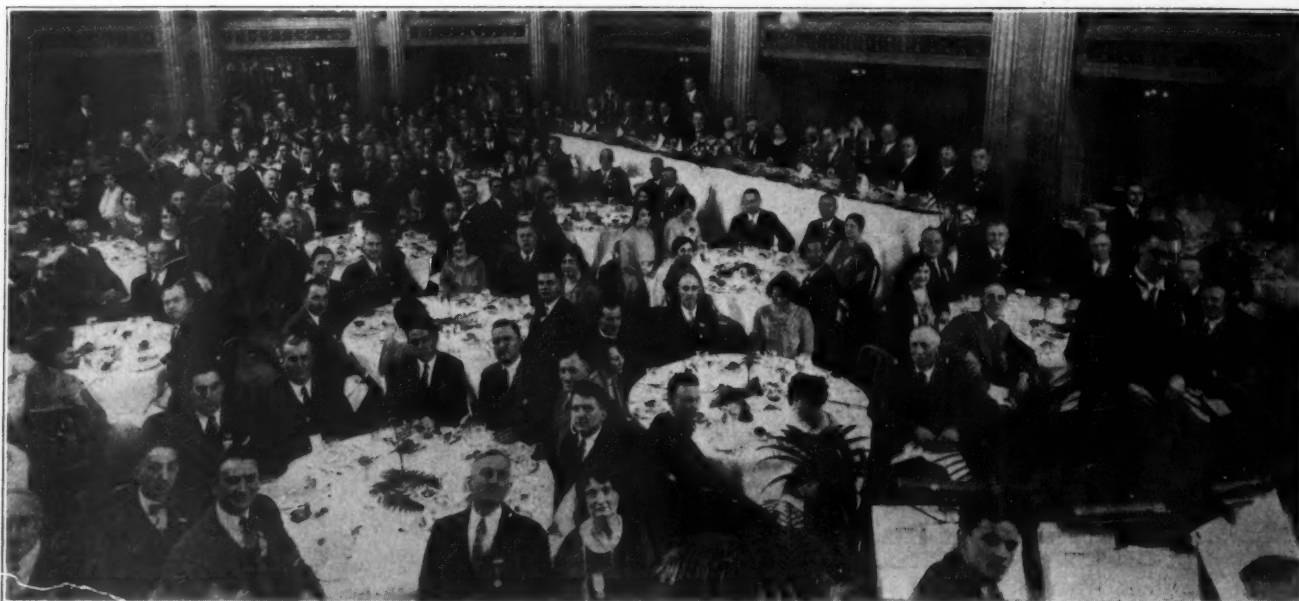
when one engaged in the business of furnace merchandising senses the true aspect of his work. Labor and services are cheap so long as they produce a profit. The average dealer who follows the suggestions made by his trade publication and those manufacturers whose products he is trying to distribute will automatically have a better merchandising plan than he could formulate of his own accord, were he in position to do the research work necessary. Manufacturers know that a proven merchandising plan for their dealers is just as fundamental to their success as having a sound product.

Every furnace accessory comes into existence to meet a specific need or to bring a desired comfort. The dealer who is constantly abreast of improvements, other factors being equal, automatically becomes the leader in his community and profitably enjoys the greater good will that comes therefrom.

Selling Service Rather Than Plain Merchandise

The furnace merchant installs a heating system, designed and guaranteed for a certain performance. He is not the purveyor of tin pipe, cement or grate bars. He should know more about the factors governing the successful performance of his heating system in the home than any other individual or organization. When he installs additional equipment or accessories he stands in the first line of defense of his own handiwork. To permit the picked-up mechanic of a specialty selling organization to install additional equipment may possibly be the opening in which the element of decay of his own work may begin.

The continual increase in the manufacture of furnace accessory equipment forces a dealer to adopt some kind of a definite merchandising attitude. It is his individual problem and will continue to be because it is impossible for the manufacturer of furnaces, as in the case of the automobile manufacturer, to make even a small part of the average group of accessories standard equipment for his product.



Some of the 300 and More Guests that Attended the Convention of Ohio Sheet Metal Contractors' Association at Columbus, Ohio, Enjoying Banquet

Ohio Sheet Metal Contractors Stage Remarkable Comeback in State Association Work

Senate Bill No. 85 to License Furnace Men Creates Very Warm Discussion

By GEORGE DUERR

BOY, what a convention! I mean a C-O-N-V-E-N-T-I-O-N, and I'm speaking of the annual meeting of the Ohio State Sheet Metal Contractors' Association, which was held in the Deshler-Wallick Hotel, Columbus, Ohio, February 12 to 14, 1929.

Program Finances Convention

There were three reasons for the phenomenal success of this convention. In the first place Arthur Lamneck was the General Chairman of the convention committee. In the second place the other two members of the committee were A. E. Bogen, president of the organization, and F. G. Mirick. In the third place the board of directors and officers had set for themselves at the start a definite goal in the form of profit to the members attending the convention, without neglecting the social side. It was, therefore, along these lines that the convention committee was instructed.

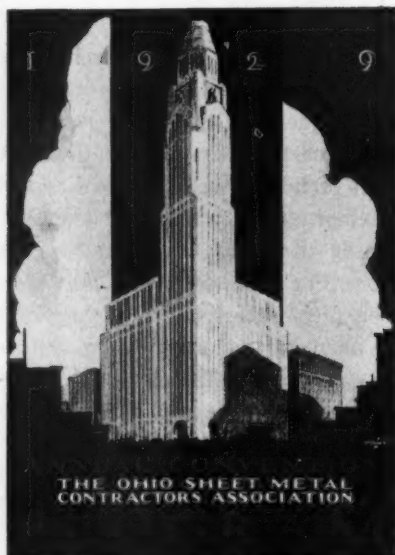
Realizing, however, that a pro-

gram arranged to approximate and to conform with the instructions of the Board of Directors would require an amount of money considerably larger than that which would be made available to them through the ordinary channels of revenue of the association, the committee set

about providing the additional finances necessary to bring the best speakers available on subjects of interest to the membership to the convention. Their means of doing this was the convention program.

The program was indeed an elaborate production. It carried upon its frontis-piece one of the most beautiful cover illustrations that has ever appeared upon any convention program which has come to my attention. It was printed upon a high-grade enamel paper. It contained a list of those dealers attending the convention who had registered before the meeting opened, although, of course, there were many at the convention whose names did not appear in the list, because they delayed their registration until coming. There were about 250 names in the list, making the attendance well over 300, a record-breaking gathering for a state convention.

Then there were the names of all the Ohio State members of the Jobbers' and Salesmen's Auxiliary, and



Frontispiece of Ohio Sheet Metal Program

the convention program itself, to say nothing of the numerous advertisements.

Contractors Spend Afternoon in State Prison — as Guests

The committee having the work of producing this program deserved and received a great deal of credit for the appearance of the printed work. It was a job well designed and well executed. Furthermore, the object of the program was accomplished, as the revenue from advertisements appearing in it financed the convention. • This in no way detracts from or belittles the part which the Jobbers' and Salesmen's Auxiliary had in the convention. So much for the preliminary work

which the various committees did in staging the convention.

The convention itself opened Tuesday, February 12, and the entire morning was given over to registration and getting acquainted.

In the afternoon a trip through the Ohio State Penitentiary proved to be an exceedingly interesting, although somewhat gruesome experience, especially the viewing of the electric chair. The guests were taken in groups of fifty successively through the living quarters, the dining halls, the work shops of the inmates, accompanied by guides (prison guards) who explained the daily routine of the prison life as the journey progressed. This ended in the chapel, where the entire assembly

was entertained by prison talent in the form of a jazz orchestra, two quartettes, a soloist, a pianist, and two members of the Schwartz Kunst (black art) fraternity, who demonstrated the possibilities in mental telepathy. The trip to and from the prison was accomplished by means of taxis, provided by the association.

Red Redding and Her Flying Flappers Flew Over from Indianapolis

In the evening of Tuesday a special entertainment had been arranged for in the ball room of the Deshler-Wallick Hotel. The Flying Flappers, a female orchestra from Indianapolis, led by Miss Redding, provided plenty red hot music for

NOTE

FIGURE COST OF FURNACE AND CASING

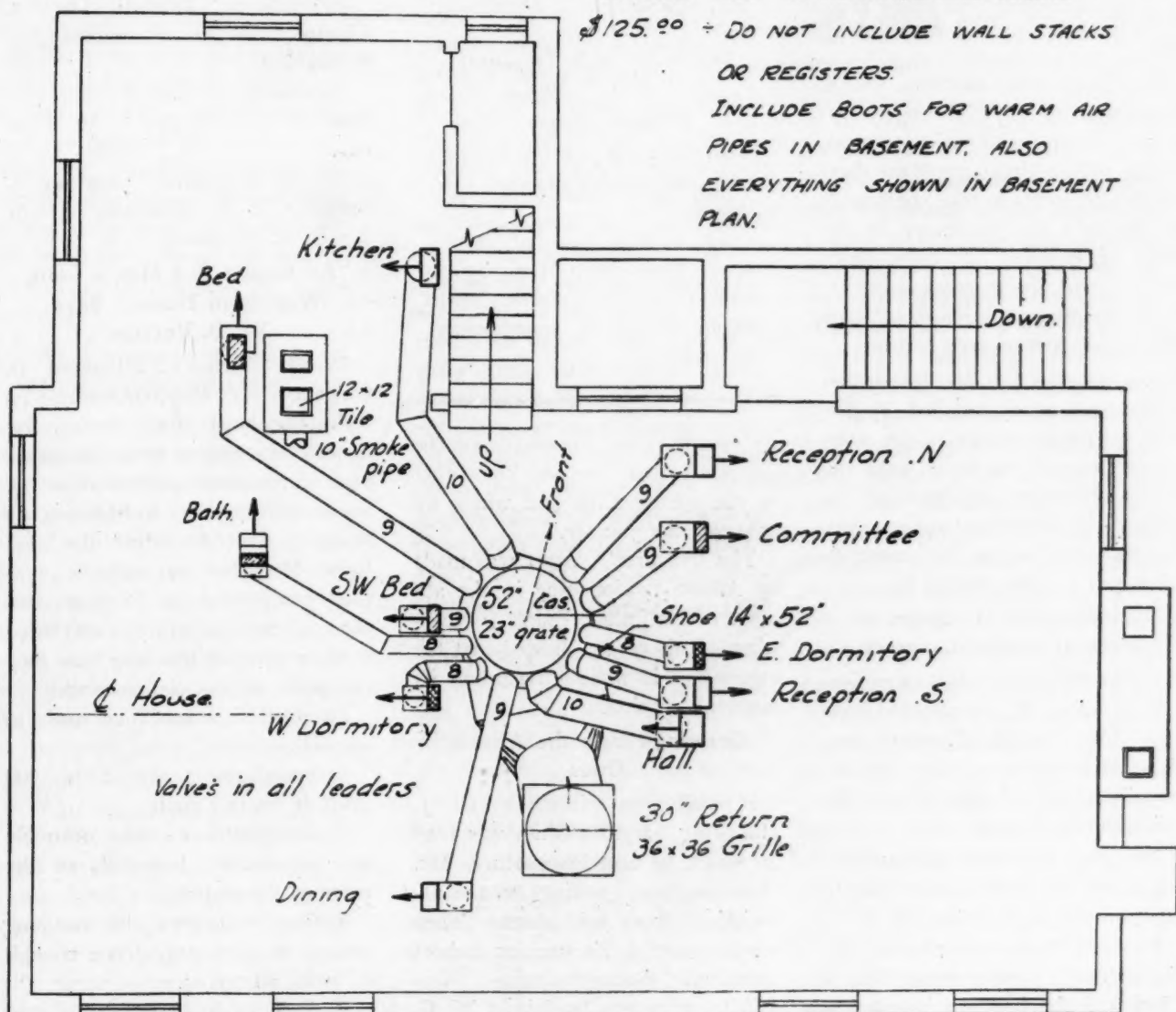
\$125.00 ÷ DO NOT INCLUDE WALL STACKS

OR REGISTERS.

INCLUDE BOOTS FOR WARM AIR

PIPES IN BASEMENT. ALSO

EVERYTHING SHOWN IN BASEMENT
PLAN.



Warm Air Heating Plan Figured at Ohio Convention

dancing and for the several special ballet numbers that were staged. And boy they were hot, what I mean! As the leader herself expressed it, her name was Redding, she had red hair and believe it or not, the music she and her orchestra produced was not only red, but white hot. This feature of the program alone cost \$300, Mr. Lamneck said. Favors in the form of paper hats, whistles, and paper throw rolls were distributed. Punch was also served. It was all a very enjoyable entertainment from first to last.

In placing credit where it is due for the success of the entertainment feature of the convention, too much praise cannot be given to Mrs. A. E. Bogen, wife of the President of the association, Chairman of the convention committee of the Ladies Auxiliary, as many of the entertainment events were planned by her.

The Wednesday morning session began promptly. A. E. Bogen, Columbus, president of the association, in his annual address, urged the sheet metal contractors to take cognizance of the fact that a change in the trend of business has come about and for that reason cooperative effort is more necessary now between business men than ever before.

It was stressed by Mr. Bogen that competitors are compelled by the force of circumstances of the present day to meet and devise ways and means collectively of building the industry in which they are engaged. No man can escape this responsibility and no man should try.

Saunders Sees Program as Work of Arthur Lamneck

Following the president came Secretary James M. Saunders, Cleveland. Mr. Saunders' report consisted in a review of the work accomplished in the way of rehabilitating the association.

He gave Mr. Lamneck and his committee a wholehearted compliment on the program issued.

In regard to the situation at Cincinnati Mr. Saunders stated that in Cincinnati the building industry is undergoing a complete change, and

although the Cincinnati sheet metal group has been out of the association for more than a year, these men are 100% in sympathy with the work that is being done and will be back into the association again just as soon as the situation now existing will permit.

President Bogen paid a compliment to the work of Mr. Saunders by saying, "if your broom sweeps as clean as it has during the past

They Elected the Same Officers for Another Year at Ohio

President, A. E. Bogen, Columbus.

Vice President, Joseph Dersher, Toledo.

Secretary, James M. Saunders, Cleveland.

Treasurer, E. J. Hoersting, Dayton.

Directors, Mart. Armstrong, London; P. E. Sullivan, Dayton; William Feiten, Cleveland; Charles Grotte, Cleveland, and Adolph Munkel, Columbus.

No greater vote of confidence could have been passed on to these men than that they should have been unanimously re-elected.

six months, (Mr. Saunders took the job in October) we will know that in you we have the find which we now consider you are."

The treasurer's report was made by Albert J. Hoersting in the absence of his father, Frank J. Hoersting. This report showed that the association is rapidly regaining its financial stamina.

Greetings from the Absent Ones

A radiogram from Frank J. Hoersting, Dayton, Ohio, was read in which he and his partner, Mr. Holtman, sent greetings to the association from mid-ocean. They were enroute to Europe for a short vacation.

A telegram was read from W. E. Lamneck, Columbus, absent in New

York for the express stated purpose of meeting the Prince of Pilsen. President Bogen remarked that knowing W. E. Lamneck as he does, he thought the trip more than likely one to get an old style Pilsner. Mr. Lamneck's greeting expressed the desire that the meetings meet with unbounded success.

W. H. Daily, past president, absent in St. Petersburg, Florida, sent word that although many miles separated him from his friends and the convention, he nevertheless was with them in spirit, wishing for a successful meeting.

Committee Appointments

The following committees were appointed:

Credentials: Fred G. Mirick, William Feiten, and Fred Christen.

Resolutions: Joseph Dersher, Charles Grote, P. E. Sullivan, A. E. Munkel.

Nominating: George Dietz, Jr., John D. Gerken, Jr., S. W. Denney.

Special Committee: Harvey S. Haslett, J. S. Reardon, C. N. Meade, H. E. Owen.

"An Expert Is a Man a Long Way from Home," Says W. B. Burruss

W. B. Burruss, Washington, D. C., gave a very excellent address on "The Boneheads in Business." But instead of trying to embarrass those poor unfortunate souls who do not know why they are in business, by dragging their errors into the limelight, Mr. Burruss made a complete analysis of the purposes and aims of men in business and tried to show them in that way how they can profit by association work.

He said there are four roads to success.

1. Speculation—only 1 in 100 made it via this route.
2. Inheritance — very desirable and pleasurable, but still not the route of the majority.
3. Own experience—life not long enough to gain experience enough to avoid all errors.
4. Profiting by experience of others. Reading and association work.

He dwelt a considerable length upon the fact that the life of any one man is not long enough to allow him to dig out all the information he needs for the successful conduct of his business. The average life is 36 years, therefore a man has not much time in which to make a success. He spends 12 years in bed. Another 12 years in seeking recreation and going to and from his work. And the remaining 12 years he has for work.

There are certain other fundamentals that must be and are given consideration in the successful business. They are:

1. That the manufacturer of a product must make a product having an appeal to the public, or there must be a need for it.
2. He must find out how extensive the market is, or he must gauge the potentiality of that market.
3. The price of article or service must be in line with its appeal and its need, although price is not always the basis of the reasons why people buy. And the type and extent of sales contact necessary to sell the goods must be determined. And in all these things the association can be of unlimited aid to the individual.

"What Industry Needs Is More Creative Salesmen"

In a short digression on salesmanship and price cutting Mr. Burruss stated that he prefers always to sell a man before that man is ready to buy. In other words, go out and dig up business in preference to waiting for it to come in to you. In this way the salesman has a chance to influence the prospect without price or competition becoming a factor. The sale is made by the prospect being influenced entirely by what he hears the salesman say.

If on the other hand the prospect comes in to buy, he is then in a buying mood and is more inclined to want to shop around. In other words he is a price buyer and generally buys on that basis solely. "There is too much fighting for business that is apparent and to little

creative salesmanship being employed."

Governor Cooper Introduced

Following the very able talk by Mr. Burruss, which was followed with intense interest by all present, Ohio State Governor M. J. Cooper was introduced by Web Rybolt. The governor extended a most cor-

Ohio Sheet Metal Contractors Oppose Furnace Bill

"Resolutions opposing passage of a bill now before the Ohio State General Assembly which provides a license fee for the installation of warm air furnaces were adopted by the Ohio Sheet Metal Contractors' Association at the closing session of their convention Thursday in the Deshler-Wallick."

"Opposition, it was declared, is based on the license fee and \$5 permit required, and that the bill is out of date in some respects and needed revising. Under the Standard Code, such as is followed in Columbus under the supervision of the city building inspection department, there is no necessity for such a bill, it was said. Several other Ohio cities follow the Standard Code."

"The sheet metal contractors asked that the bill be withdrawn until another could be substituted at a later date," from Ohio State Journal, February 15, 1929.

dial welcome to the sheet metal men, and assured them among other things that it is his intention "to make every dollar collected in tax money look and act like the dollar of private enterprise." He received a loud ovation of cheers.

Before the morning session closed a blue print containing the floor plan and heating requirements of a residence was handed to each man present, with instructions to make a bid on the job and return for comparison in the afternoon. The floor

plan is reproduced on page 105.

The bids on the job were found to range from \$283.00 to \$342.00. The official bid on the job was to be given out at a later session.

State Legislation for Furnace Installation

Following the reviewing of the bids, A. E. Munkel, Columbus, asked the question, "Where is the retailer going to profit by Senate Bill No. 85 of the Ohio Legislature?" This bill would provide for state legislation on the installation of warm air furnaces.

A great deal of discussion followed which revolved around the provisions of the Bill known as Sections 8 and 9. These sections read as follows:

"Each person, firm or corporation who desires to engage in the business of warm air furnace contractor shall file with the secretary of the State Board a written application, under oath, on a form prescribed by the board, and furnish evidence of business character and reputation. If the state board is satisfied with the finesse of the application, it shall, upon the payment a license fee of \$100, issue a certificate authorizing the applicant to engage in such business for a period of one year. The state board may revoke such license upon the ground that the licensee has failed to comply with the provisions of the Standard Code regulating the installation of warm air furnaces in residences, hereinafter provided for, but before exercising such power of revocation the licensee shall be given a reasonable opportunity to be heard. . . ."

"Section 9. Whoever, being the owner or lessee of a residence property, desires to install a warm air furnace therein shall, as a condition precedent to proceeding with the work of installation, apply for and obtain a license from the auditors of the county in which such residence be located. The fee for each such license shall be the sum of \$5.00, which fees, less ten percentum to be retained by the county auditor for his expense and services, shall be by him transmitted

monthly to the treasurer of state, and by him turned into the state treasury to the credit of the warm air furnace fund. . . ."

Perhaps the greatest bone of contention is to be found in Section 1.

"Section 1. The governor, with the advice and consent of the senate, shall appoint a state board for the enforcement of the standard code regulating the installation of warm air furnaces in residences, hereby established. Such board shall consist of three members, one of whom shall serve for the term of six years and whose vocation shall be a journeyman sheet steel

Resolution on Senate Bill No. 85 of the Ohio State Legislature

"It is moved by Mr. P. E. Sullivan, Dayton, seconded by Mr. Charles Grote, Cleveland, that Senate Bill No. 85 be withdrawn and redrafted by the committee on resolutions and that the Board of Directors, to whom the Bill shall be referred, shall have power to act."

Refer to convention report for members of the Resolutions Committee.

worker, and by virtue of such appointment shall exercise and perform the duties of chief state inspector; one for a term of four years, whose vocation shall be that of sheet metal contractor; and one for a term of two years, whose vocation shall be that of journeyman sheet metal worker. . . ."

A motion was made to refer the bill to the resolutions committee for consideration.

H. T. (Tommy) Richardson reviewed the work of the National Warm Air Heating Association of which he is chairman of the Publicity Committee, pointing out the many ways in which the association is endeavoring to be of service to the warm air heating men. He also urged their cooperation by becoming associate members.

He was followed by Jack Sto-

well, special representative of the association, who gave a graphic demonstration of the appreciation of the Standard Code to Residence Work. In this he used charts and blackboard and took the work from beginning to end. He also demonstrated several short cuts.

Professor A. P. Kratz of the University of Illinois, reviewed by means of lantern slides the research work that has been carried on at the University of Illinois.

Ladies Entertained at Luncheon

At noon Wednesday the ladies were entertained at luncheon in the French room of the Deshler-Wallick. At this function they were entertained by Cecil J. Fanning, well known singer, accompanied by Miss Helen Grace Jones.

In the afternoon the ladies were taken to the theater.

Travellers' Auxiliary Have Their Inning

In the evening the entire attendance at the convention was entertained as the guests of the Ohio Travellers' Auxiliary. There was dancing, interspersed with ballet numbers and vocal selections. It was all very enjoyable. Lee Gillespie kept things moving in fine shape and the evening was very enjoyably spent.

An Appreciation of Friendship

Thursday morning the session was presided over by Joseph Dersher, Toledo, Vice President, and to him fell the pleasure of introducing Edward Kelsey of Toledo, who addressed the assembly on "Why the New Note in Business?"

Mr. Kelsey is a very forceful speaker and has the knack of putting his stuff across in a way that gets down under the skin and sticks. He spoke of the "Spirit of Play" and told how so many men have lost it entirely and for that reason they grow old and die before they have had a chance to find out that life does not necessarily mean the amassing of great wealth. There is a wealth to be gotten out of life much more permanent and satisfying than money, and if people will only stop and realize that one simple

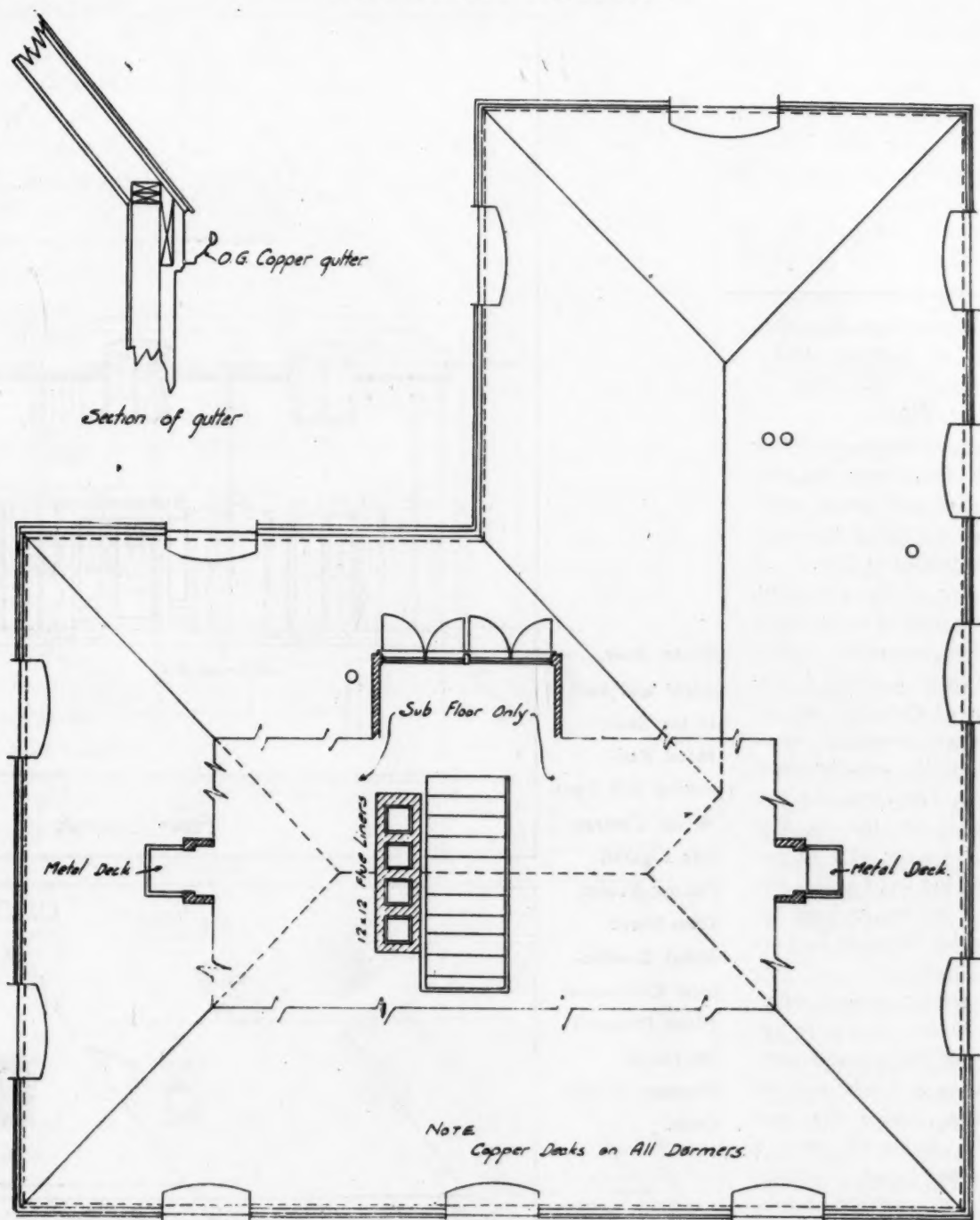
little truth, life would be much more interestingly spent.

From the value of retaining the spirit of play Mr. Kelsey went to the appreciation of friendship and how much easier work is made when a man has built up through honest and deserving effort the

Lamneck Receives Big Ovation for His Part in the Convention

One of the most hearty ovations that it has ever been the pleasure of any convention chairman to receive was accorded to A. P. Lamneck, Chairman of the Convention Committee, during the banquet of the Ohio Sheet Metal Contractors' Association. Those in attendance clapped their hands, stood up and shouted at the tops of their voices, then sat down, got up again and started all over a second time. And it was well earned appreciation, for the Ohio convention, due to the work which Mr. Lamneck put into it, was one of the most successful conventions, looking at the matter from every possible standpoint, that any state body has ever put on. It was an event that will long be remembered by all who had the good fortune to attend. If there is anything to a satisfaction of knowing that a job you had was well done and appreciated, Art Lamneck must certainly be filled with satisfaction at the present time, because the job he had was well done.

friendship of men that are around him. The power of the smile came in for a great deal of review and these topics interspersed with many good stories full of fun and pointing out at the same time some little truth made up Mr. Kelsey's talk. It was very much appreciated by his audience. In his effort to give the convention something good, Mr. Lamneck certainly had scoured the country from one end to the other, for he had a top notcher on the pro-



Roof to be of 8x16x $\frac{1}{4}$ slate to cost \$20.00 per sq. ft., f. o. b. your city. Nails to be $\frac{1}{4}$ -in. copper. One layer 30-lb. felt over entire roof surface. Valleys to be 16-oz. copper, 18-in. girth. Hips to be of Boston type. Dormers to be covered with 16-oz. copper. All flashing and counter flashing to be of copper, 16-oz. Copper gutters to be of O. G. type, 18-in. girth. Copper conductor pipe to be 4-in. square corrugated and placed as shown on plan. Labor, \$1.00 per hour, and 60c for helpers.

gram at every session.

At the opening session of the afternoon meeting of Thursday a representative of the Monel metal people was given an opportunity to point out some of the new markets for sheet metal that are being created by this metal.

A. E. Munkel, Columbus, President of the Superior Heating Company, gave a very instructive address on the subject of "Overhead Expense." At the outset Mr. Munkel expressed the opinion that prosperity tends to make the contractor

forget the necessity of figuring his overhead into the job. He said that immediately after the war it was possible for almost anybody to make money in almost any kind of business and during this period a laxity had crept in which is playing havoc with profits today. Those easy times are gone now, according to Mr. Munkel, and business is now going through an elimination contest. To survive the warm air heating contractor must be so close to his business that he knows just where he is at all times on his ex-

penses and to do this he must get close to his overhead. "Overhead is the compass or guide to the furnace man."

One reason for the great mortality in the furnace business, as Mr. Munkel sees it, is that it is too easy for furnace mechanics to get into the business. Manufacturers, he thought, are too lenient with credit and in that way they induce a lot of men to go into business without proper financial backing to tide them over the first year or two.

In order to Illustrate the neces-

sity of applying overhead, Mr. Munkel, by a series of questions put to A. E. Bogen, who for the time being had assumed the role of a man just going into business, made a very interesting depiction of the use of overhead.

"How much business do you think you ought to do per year?"

A. E. Bogen Gets Beautiful Bunch of Lettuce and Carrots for His Work

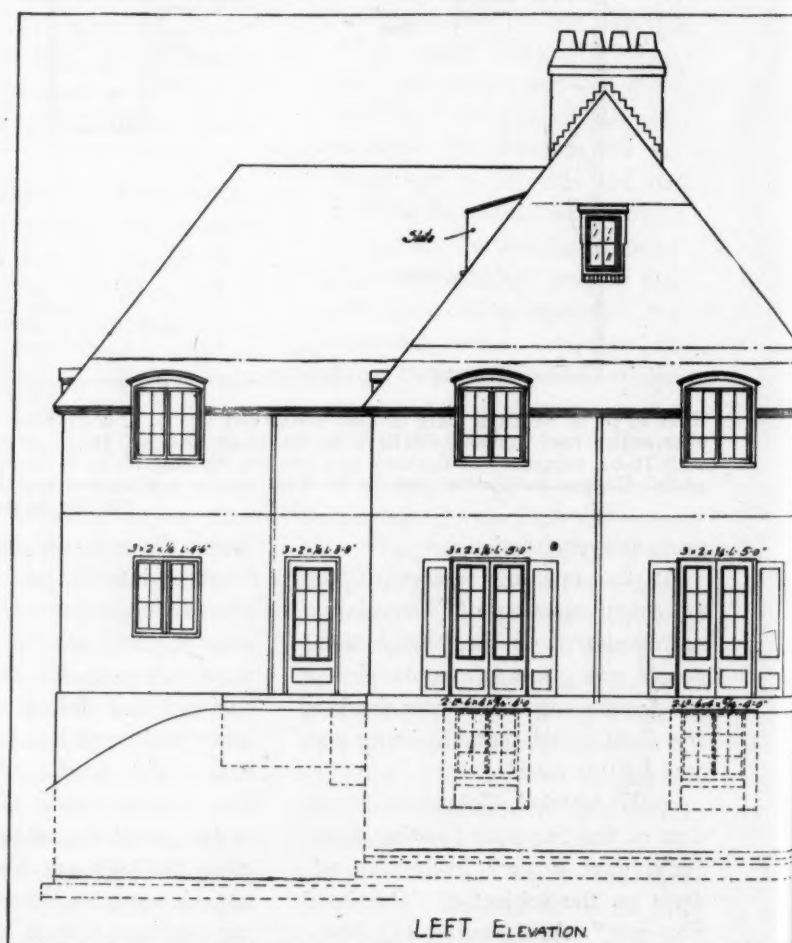
During the banquet Arthur Lamneck, in a very touching speech filled with much sentiment, on behalf of the association, presented to Mrs. A. E. Bogen, wife of the President, a box of beautiful roses, and a beautifully engraved ladies' wrist watch as a token of appreciation of the good service Mrs. Bogen rendered as a member of the entertainment committee. The roses she was admonished by the cavalier Lamneck to wear next to her heart, and the wrist watch she is to use to get her husband out of bed so that he might beat his friendly competitor, A. E. Munkel, getting furnace jobs.

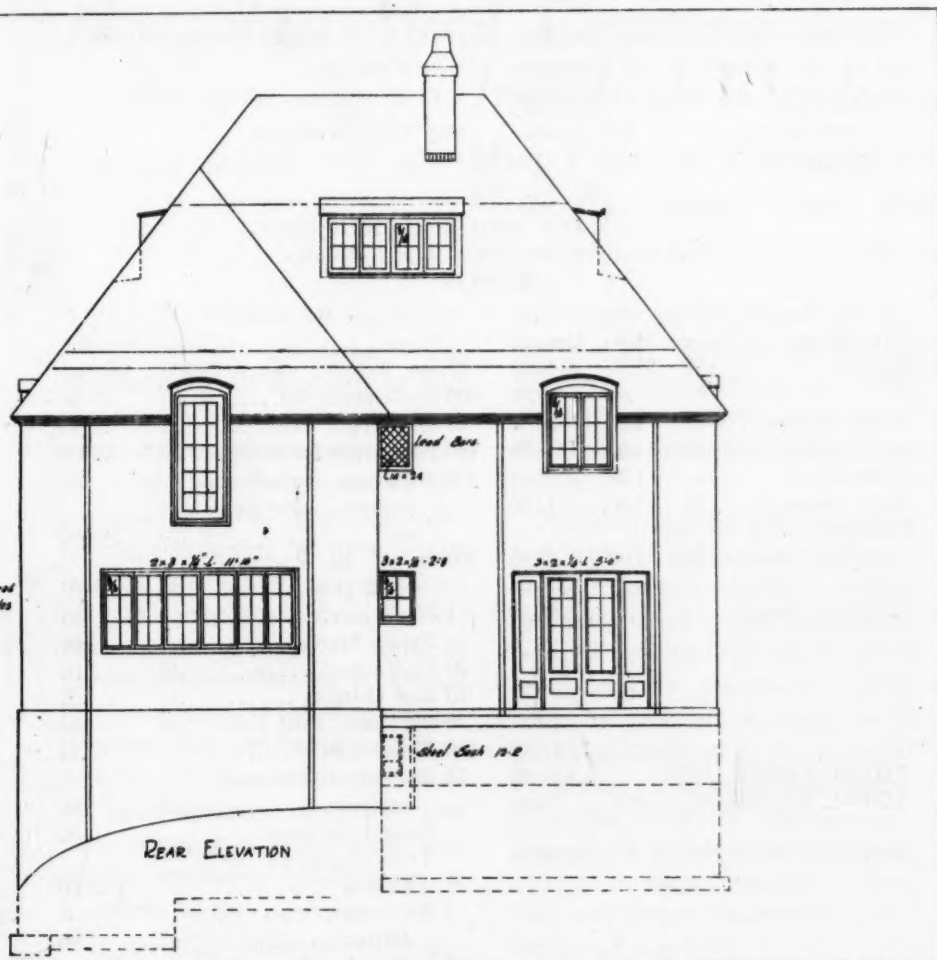
While to Mr. Bogen, in appreciation of the valuable service which he had rendered the organization during the past year, Mr. Lamneck gave a nicely washed bunch of lettuce, carrots and cabbage leaves, filled with vitamins which he will need to beat his friendly competitor 'dolph' Munkel. The other members of the committee were likewise thanked for their efforts.

Ans. \$50,000. If you can't reasonably expect to do that amount of gross business during the year, it would be better to put your money out at interest and go to work for some one else.

"How much capital do you need to start?" Ans. \$10,000. Then the tabulation of overhead expense

Front, Rear, Right and Left of the Sheet Metal Estimating Job Upon Which Contractors Figured During Recent Ohio Sheet Metal Contractors' Convention. Plans Prepared by Joseph Dersher, Toledo, Ohio.





items. The amounts given are per month.

Interest on investment at	
6%	\$ 50.00
Place of business, rent.....	75.00
Salary	200.00
Bookkeeper (Going to have	
a blonde says Bogen)...	100.00
Truck driver.....	100.00
Telephone	10.00
Stationary	10.00

Entertainment Committee Given Great Ovation of Gratitude

"Whereas, the Ohio Sheet Metal Contractors' Association has had a most entertaining and instructive program.

"Whereas, this program will linger in the minds of those in attendance to the end that their efforts at home will bring about splendid results when they return to their respective homes, and whereas, the ladies of the convention have likewise had a most enjoyable time, and whereas, this committee, consisting of Mr. A. P. Lamneck, Chairman, assisted by Mr. A. E. Bogen and F. G. Mirick, and Mrs. A. E. Bogen, has worked unceasingly and untiringly for the grand success this convention has been.

"Therefore, be it resolved that the Ohio Sheet Metal Contractors' Association in meeting in Columbus, Ohio, this 14th day of February, 1929, do extend to this committee and to others who made the program a success a hearty vote of thanks."

Automobile expense.....	80.00
Advertising	25.00
Donations	10.00
Light and Power.....	20.00
Workman's Compensation	
Insurance	15.00
Insurance on Stock.....	10.00
Depreciation on machines	
and tools.....	40.00
Merchandise	20.00
Reserve for bad debts.....	25.00
Reserve for bad jobs.....	25.00

Go Backs	25.00
Taxes	40.00
	<hr/>
	\$900.00
Total overhead \$900 x 12	
mos. equals	\$10,800
Productive labor.....	10,800
	<hr/>
	\$21,600
Merchandise	\$25,000
	<hr/>
	\$46,600

of 21½% overhead

Mr. Munkel said that he realized that he had not put every possible item of overhead in the list, but there are enough of them there to make the contractor realize what the nature of these items are and how they make the costs mount up. And all of these costs must be paid for before any profit is possible.

Mr. Munkel's address was very well received.

It was following this address that the resolutions on the entertainment and auxiliary were read.

The election of officers resulted in all being re-elected. Directors the same.

A big discussion took place upon the insurance rates that are charged. It was felt that these were too high. This discussion resulted in the appointment of a committee on roofing that is to investigate this phase of sheet metal insurance and see if something cannot be done to reduce the rates.

At the morning session plans for the sheet metal and slate work on an actual job were handed out for the contractors to figure the job and see how close they could come to the actual figure. This plan had been prepared by Joseph Dersher, Toledo, and at the afternoon session these plans were called in and the total cost of the job was placed upon a blackboard. These costs are published herewith with the kind permission and indulgence of Mr. Dersher. The plans of the house will be found elsewhere in this issue.

The total labor costs on this job, as Mr. Dersher presented them, was \$1,040.00. For this job he got \$1,480.00, but explained that his

sheet metal labor item was too low and he lost on that. For a complete tabulation of the labor and material costs on this job see the following lineup:

COST SUMMARY AND ESTIMATE SHEET

Net Cost for Job Estimated at Convention

\$1,040.36

LABOR				MATERIAL		
Operation	Hours	Rate	Amount	Items	Per	Amount
Roofing	143	\$1.00	\$143.00	22 sqs. 8x16x¼ slate....	\$20.00	\$440.00
	93	.60	55.80	660 lbs. asphalt felt.....	.03	19.80
Copper gutters ...	36	1.00	36.00	80 lbs. copper nails.....	.25	20.00
Cond. pipes	10	.60	6.00	190 lbs. copper for trough	.30	57.00
Dormers	16	1.00	16.00	360 lbs. copper for valleys,		
Flash chimneys ...	12	1.00	12.00	dormers, flashings,		
Flashing over gar-				etc. ....	.30	108.00
age and entrance. 15	1.00	15.00		200 ft. 4" sq. copper		
				cond. pipe .....	.35	70.00
Total Labor			\$282.80	1 4" ell .....		.95
				Patten hooks		3.00
				20 lbs. solder .....	.35	7.00
				10 bags charcoal .....	.16	1.60
				20 lbs. galv. band iron.	.08	1.60
				Stove bolts .....		.21
				15 lbs. copper for cond.		
				heads .....	.30	4.50
				Freight on cond.....		1.00
				Truck charge for		
				hauling		20.00
				3 lbs. copper nails for		
				dormers .....		.90
				40 lbs. galv. iron for		
				clothes chute.....	.05	2.00
				Material Total		\$757.56

TOTAL LABOR COST.....\$282.80

TOTAL MATERIAL COST... 757.56

NET TOTAL COST.....\$1,040.36

In the evening the banquet took place in the hotel ballroom and the main speaker of the evening was Jesse Pugh, who certainly kept his audience in tantrums of laughter during a period of some two hours. Following the dinner dancing and bridge was indulged in until the meeting came to and end. I repeat some convention.

Ohio Auxiliary Elects S. A. Schwartz President

Not only did the Ohio Sheet Metal contractor eclipse all previous attendance records at the convention this week but the Jobbers and Salesmen's Auxiliary showed up very strong.

At a peppy meeting held Wednesday, February 13th, matters of general interest were discussed and following officers elected for 1929-1930.

S. A. Schwartz—Cleveland, President.

D. A. Hossler—Cleveland—First Vice-President.

C. E. Wallar—Nellie, Ohio—Second Vice-President.

Lee W. Gillespie—Cincinnati,

Ohio—Secretary-Treasurer.

C. T. McGoogh—Van Wert, Ohio—Sergeant-at-Arms.

Directors will be appointed by the President.

Wednesday evening the auxiliary was host to the Contractors at an Entertainment and Informal Dancing Party that was a real treat.

Exhibitors at Michigan Hardware Show, Detroit

Detroit-Michigan Stove Company. Garland and Detroit-Jewell stoves.

Dowagiac Steel Furnace Company. The Grey front steel furnace. R. S. McNaney, Dee Carney, Glenn Burgess.

Fox Furnace Company. Sunbeam furnaces.

Mt. Vernon Furnace and Manufacturing Company. Vernois furnaces and circulators, laundry stoves and a new gas stove. R. S. (Tommy) Thompson.

How Sheet Metal Contractor Can Boost Profits with Industrial Ventilation

Many Factors in Ventilation That Must Be Given Close Study

By PAUL R. JORDAN, Paul R. Jordan Company*

VENTILATION is a matter that grows with civilization. Uncivilized men do not need to take any thought for ventilation. Even after civilization has advanced to the single home stage and we are living out by ourselves in single residences, surrounded by fresh air, or working in the open, we still don't have to worry much about ventilation. As we begin to work in groups, however, lack of ventilation becomes noticeable and disagreeable, if not actually unhygienic; and then with the introduction into our work of manufacturing processes with their releasing of odors, gases and smoke, ventilation rapidly takes on a serious aspect.

In the larger cities where a greater and greater proportion of the people live in apartments, ventilation has already become a matter which cannot be overlooked either by the apartment dweller interested in his health and comfort, or by the apartment owner who is being forced to ventilate unventilated apartments. This is particularly noticeable in that phase of apartment ventilation which we may designate as roof space ventilation, which is merely heat removal. The owner of the unventilated apartment, finding the upper floor of his apartment vacated during summer months on account of heat, is willing and anxious to pay good money to the ventilation man who can enable him to keep his apartment rented.

In smaller towns, although living quarters are simpler, working conditions are not necessarily so. You will find working places that are as crowded by workmen, machinery

and fumes as any found in the larger cities; therefore, the field of industrial ventilation is one which is open to the small town contractor the same as to the metropolitan contractor.

A few of the ventilation problems met with in industrial ventilation are as follows: Removal of poisonous gases, as in garage ventilation; removal of cooking odors, as in restaurants or apartment ventilation; removal of moisture, as in laundries, paper mills, etc.; removal of foul air, as in school houses, machine shops, clothing factories, etc.; removal of spray paint or fumes, as in paint shops; removal of heat, as in workrooms, apartments or residences of any kind.

When I speak of removal I am mentioning only one end of a ventilating system. A ventilating system is made up of both ends and the middle. The first end is the intake of the furnishing of fresh air; the middle is the diffusion or circulation of the air throughout the spaces to be ventilated; the last end is the exhaust or the removal of the objectionable atmosphere. In mentioning the specific types of problems I speak of removal only because that is the more graphic end. Intake and distribution are just as important as exhaust, but exhaust is a more graphic term making distinctions easier.

Garage Ventilation a Special Type

In garage ventilation the gas to be removed is carbon monoxide, a heavier than air gas. Here ventilation must be positive, must draw the foul air from the floor and must be so placed as to leave no dead air pockets. A good rotary ventilator should always be used. It is better than a fan, because it is more de-

pendable, is less expensive in first cost, and is more economical in operation.

Smoke removal, as in foundries, is usually a question of volume. The only way to get smoke out of a building is to ride it out on air. Inasmuch as the smoke rapidly diffuses with the air, it of necessity requires a large volume of air to remove a small volume of smoke. A roof ventilator, preferably a rotary and installed at the ceiling without a hood, is usually the best means to use. The installation of a ventilator at each point where smoke naturally gathers and of sufficient size to give the necessary capacity, will pull the smoke out where it is thickest and will accomplish the desired result with a minimum of air turnover.

This is desirable on account of the expense of heating. All of the air handled must be heated in cold weather. A system such as this is much better than a dilution system, which often involves the handling of a simply prohibitive volume of air. By dilution I mean introducing and withdrawing enough air to mix with the smoke and still leave a fairly clean atmosphere. That takes a lot of air.

Restaurant Ventilation Offers Some Difficulties

In restaurant ventilation the most acute problem is usually that of installation, as the restaurant often has other floors over it which prevent running a stack straight up. A stack outside of the building is sometimes practical, but often a fan should be used. If a stack can be run to a point above the roof and capped with a rotary ventilator, it will answer without a fan, provided it is big enough. It has this advantage over a fan installation: that it

*Address delivered at the convention of the Indiana Sheet Metal and Warm Air Heating Contractors' Association held at the Denison Hotel, Indianapolis, January 22 to 24, 1929.

is a low pressure device and will not pull the flame back out of the cook stove, as I have seen happen on fan installations in kitchens. Where a fan installation is used, a low pressure fan should be installed, and even that should be very carefully handled.

Steam and Moisture Removal a Matter of Volume

Steam or moisture removal in laundries, paper mills, etc., is another matter of volume. You have to move enough air to carry out the water. Some people seem to think that a fan by the use of some magic or other, extracts the water from the air and expels it. Unfortunately that is not the case. The only way to get rid of the water is to ride it out on air, and as water expands about 800 times when converted into steam or vapor, that means that you have got to handle a great volume of air to get rid of a little water. The entrance of cold air currents which will chill the vapor, making it white and very noticeable, is likely to be a factor, so that it is advisable to call in the engineering department of your ventilator manufacturer in handling a moisture removal problem.

Foul air removal, such as found in school houses, machine shops, clothing factories, etc., usually simmers down to proper heat conservation. You have to get volume without drafts and with as little heat loss as possible. Run your ducts down to the floor and you will take care of this, but you want to be careful that your areas on your openings are sufficient. It is a good idea to have your ventilator manufacturer check this with you.

Removal of paint sprays and fumes is usually accomplished by the use of spray booths and fans. Fumes can be carried off successfully by ventilators, but minute paint globules or other mechanical substances require the higher pressure delivered by fans. The spray booths should be designed with as little opening as possible into the room; also consideration should be given to the element of the wind

blowing against the fan outlet and counteracting to an extent, if not nullifying entirely, the efficiency of the fan. This can usually be handled by the proper installation of rotary ventilators on the end of stacks either by running them upward to a point above the roof or by running them out a sufficient distance from the building to give the ventilator a chance to turn freely and still bring the mouth of the ventilator three or four feet from the side wall. The objection to the last installation is that when the wind is against you the spray and fumes are driven right back onto the wall and windows, and in case of an opening, back into the room. This is one reason why for satisfactory operation a fan should always be emptied into a duct, carried to the roof level and capped with a rotary ventilator. Sometimes this is not feasible, but it is always desirable.

In heat removal we are again confronted with the necessity of volume. It sometimes takes a lot of air to carry away heat as fast as it is generated. This is particularly true of industrial plants. When you are confronted with a problem of heat removal in industrial plants you had better confer with your ventilator manufacturer as to the size and capacity necessary. In apartments a few ventilators, 20-inch or 24-inch in size, properly placed will work wonders as to the comfort of the dwellers on the top floor. These are for the ventilation of roof space, but here the need of intake is very important.

The placing of your roof ventilators in relation to the location of your intakes will determine the distribution. Your air travel must be properly worked out to sweep the entire roof space with no dead air pockets in order to give you satisfactory results. Here again is a good place for you to make use of the engineering information your ventilator manufacturer is always glad to pass out. On residences a 12-inch ventilator, or even smaller, will cool the attic quickly after sundown and will make the sleeping

rooms sufferable, even in the hottest weather.

Some Don'ts on the Installation of Ventilating Fans

Now a word with regard to fans. I am, of course, speaking of ventilation fans. The average sheet metal contractor is more interested in the installation of ventilators than in the installation of fans for two reasons. In the first place, a larger percentage of the selling price comes to your own pocket. In the second place, ventilators from an engineering standpoint are easier to install.

Ventilators are more nearly fool-proof because any place you put them they are likely to give noticeably good results, even if not the best possible efficiency. This is due to the fact that the ventilator is a low velocity device, while the fan is a higher velocity device. High velocity means extreme pressure which carries with it the possibility of extreme low pressure within the building at certain points.

Extreme low pressure is dynamite to your ventilator system. Look out for it. With the use of the ventilator you will not have the extreme pressure difference which calls for accurate engineering. On the other hand, you will have the removal of air in large quantities and at low cost because the pressure varies as the square of the velocity and not directly; also the current consumption varies as the cube of the velocity. If you do not know what these ratios mean as applied to the ventilation problem, ask me or any other ventilator engineer.

Exhaust fans on the one hand and roof ventilators without fans on the other should not be mixed on the same building. Installation of an exhaust fan creates an extreme low pressure at certain points, which has a tendency to make an intake of each opening of any kind, therefore ventilators in cases of that kind have a tendency to back draft. This tendency can be overcome by an assurance of sufficient intake capacity, also fans and gravity ventilators may be used at different levels; however, the mixing of fans

and gravity ventilators on the same job is a good thing to stay away from. This, of course, does not refer to a booster fan within the ventilator, although the use of fans in some ventilators and not in others may bring about difficulties.

Get Distinction Between Fan and Ventilator Clearly in Mind

When it comes to the removal of gases, smoke, heat, steam or foul air, you can do anything with a good ventilator properly installed which you can do with a fan and usually do it better and cheaper. When I say properly installed I mean that you have been allowed sufficient space for ample ducts and ventilators. Often an owner gets the idea that a fan is what he wants to use when a ventilator would be better and cheaper, and this idea bests you out of a job. Your ventilator manufacturer will tell you honestly whether or not the ventilator will take care of the job. Don't hesitate to use his knowledge to your own advantage.

The use of a booster fan in connection with ventilation work to speed up a ventilator-capped flue is practical in ventilation just as it is practical in a heating plant; however, it is only practical where it is specifically desirable to introduce a higher velocity with its consequent higher pressure. A higher velocity usually helps heat distribution and usually hurts ventilator distribution. Nevertheless there is a definite use for the booster fan on a limited number of ventilation jobs. In these cases the low pressure fan is better than high pressure.

We are working on the matter with the expectation of shortly putting on the market a properly designed booster ventilator fan, and we see indications that other ventilator manufacturers are working along the same line. We of course have jobbed fans for years, but are aiming at a design better adapted to ventilation boosting than the current types.

An element often mistakenly used is the hooding of a smoke producing machine. More often than not the

capacity of the flue withdrawing from the hood is insufficient to handle the peak load, and at this time the smoke spreads out under the edges. A ventilator opening from the ceiling would answer better because it would withdraw the smoke and when the peak load is beyond the capacity of the ventilator it would accumulate at the ceiling to be withdrawn as fast as possible, instead of being caught in a dead air pocket above the hood to later diffuse downward into the air of the room. The hood does conserve heat, but it must be properly installed to properly function; also the position of the hood must be such as to catch all of the smoke. Often variable cross currents make it impossible to place a hood where it will be practical. I have had some experience with hooding which I would like to pass on to you if you will give me the chance.

The use of skylights for ventilation sounds awfully good but actually does not work out. I have in mind two places where they told me they wanted skylights until I sold them ventilators; now they want ventilators to take the place of skylights they already have; not only that, but they are going to buy them.

Field of Industrial Ventilation Untouched

Let me summarize by calling your attention to the fact that the field of industrial ventilation is practically untouched. These plant owners want ventilation just as badly as you want to sell it to them. If they get a properly figured and well installed ventilation job they are more pleased with the results than you are with the business; and it is profitable business. You can get out of it all of your direct costs, all of your overhead, and a little net profit besides, and that is more than you can say about almost any other class of work you do during this time of the year. This is the time of year for you to go after industrial ventilation. This is when you need it, and this is when it needs you. You are overlooking the best bet in the sheet metal market if you

are not aggressively rounding up industrial ventilation work.

Call in your ventilator manufacturer and let him work with you. Don't call him in for general information; call him in if possible for a specific layout on each particular job. He will be glad to do it. He is just as anxious to develop the industrial ventilation field as you are, but not any more anxious than you are if you are as intelligently in pursuit of profitable business as he is. Don't neglect industrial ventilation.

Dies After Only Four-Day Illness of Pneumonia

Harvey A. Call, of the research department of the Copper & Brass Research Association, died February 8 in New York after an illness of four days. An attack of influ-



H. A. Call

enza at the beginning of the week developed rapidly into pneumonia, which was the cause of Mr. Call's sudden death.

Mr. Call is well known in the plumbing and heating trades, having been for many years editor and treasurer of "Sanitary and Heating Engineering."

In 1906 Mr. Call established a plumbing and heating business at Cornwall-on-the-Hudson, specializing mostly in contract work. The business continued for eleven years until in 1917 he became superintendent of plumbing, heating, sheet metal and sanitation for the Mason

& Hanger Company in connection with their work at Camp Taylor in Louisville, Kentucky, the Newark Port Terminal in New Jersey, and the Charleston Port Terminal in South Carolina. Soon after the war Mr. Call became associated with the E. A. Scott Publishing Company, of New York, publishers of "Sanitary and Heating Engineering."

A few months after Mr. Call joined the staff of the Copper & Brass Research Association at the

close of 1926, he assumed charge of its new mid-western office in St. Louis, returning to New York about a year ago to engage in research work for the Copper & Brass Research association.

Mr. Call's untimely death is mourned by his associates in the Copper & Brass Research Association and also by his many friends in the trades with which he had been identified during his entire business career.

Interesting and Attractive Exhibits of Sheet Metal and Warm Air Heating Products at Illinois Hardware Show, Chicago

The following list is that of firms and their representatives which exhibited warm air furnaces, registers, fans, and other accessories and sheet metal products at the Hardware Exhibit in the Hotel Sherman, Chicago, in connection with the Illinois Retail Hardware Convention held there February 12, 13 and 14:

A-C Manufacturing Company, Pontiac, Illinois. A-C Automatic "Heat Boosters."—D. R. Capes and Edward F. Daugherty.

Barnes Metal Products Company, Chicago, Conductor Pipe, Eaves Trough, Elbows, Mitres and Trimmings.—C. G. Siebert and W. J. Ahern.

The Beckwith Company, Dowagiac, Michigan. Coal Ranges, Gas Ranges, Furnaces and Heaters.—Gene Antoine, C. R. Anderson and Peter Watson.

Brillion Furnace Company, Brillion, Wisconsin. Brillion Warm Air Furnaces; Brillion Furnace Cleaners.—Fred Bloomfield and Mark P. Ohlsen.

The Excelsior Steel Furnace Company, Chicago. Furnaces, Furnace Pipe and Fittings, Registers, etc.—W. J. Pendergast, Joseph Goldberg, J. P. Brooks, and C. E. Glessner.

Fox Furnace Company, Elyria, Ohio, "Sun Beam" Furnaces and Cabinet Heaters.—M. H. Klett and E. A. Grange.

Independent Stove Company, Owosso, Michigan. Gas and Coal Ranges and Heaters.—M. K. Christy and Melvin Bohley.

International Heater Company, Utica, New York. "International" and "Economy" Furnaces.—T. Reid Mackin, Chicago Manager; J. M. Beech, Maurice Mackin and F. L. Fraser.

David Lupton's Sons Company, Philadelphia, Pennsylvania. Steel Fixtures for Hardware Stores; Miniature Model of Hardware Store.—C. A. Colmesnil, Sales Manager, and H. W. Edgren, District Manager of Metal Shelving Division.

Milwaukee Corrugating Company, Milwaukee, Wisconsin. (Chicago Branch Represented). Metal roofing and ceilings, sheet metal building products, fur-

nace pipe and fittings, metal laths and corner beads, ventilators.—W. F. Waller, F. J. Kidd, Wm. Peterson, E. G. Holly, H. A. Parkin, L. R. Wise and Fred Naylor.

Thatcher Company, Newark, New Jersey. Meteor All Cast Furnace, Elite Red Jacket Boiler.—Hugo Stumpp and Theo. B. Emery.

Wheeling Corrugating Company, Wheeling, West Virginia. Wheeling Household Metal Ware, Wheeling Ovens, Wheeling Cop-R-Loy Channeledrain Roofing.—Wm. B. Marcussen, A. E. Ketcham, A. J. Madson, R. H. Nixon, H. T. Niehaus, V. A. Schroder and N. Olsen.



Cemetery Vases

From Julius Hauser and Son, Corner Fulton Avenue and Maryland Street, Evansville, Indiana.

Can you tell us where to purchase tin or galvanized cemetery vases—cone shaped with spike at bottom?

Ans.—R. J. Haight, 45 East Ohio Street, Chicago.

"Neon" Electric Sign Agency

From Sholly and Riddle, 118 South Main Street, Kirksville, Missouri.

We should like to obtain the agency for the "Neon" electric signs. Can you tell us who makes them?

Ans.—Neon Electric Sign Company, 3910 South Western Avenue, Chicago.

Automobile Radiator Cores

From B. Butchart, 103 South Pine Street, Natchez, Mississippi.

Can you advise me who makes automobile radiator cores?

Ans.—G & O Manufacturing Company, New Haven, Connecticut; McCord Manufacturing Company, Detroit, Michigan; Perfex Radiator Company, Racine, Wisconsin; Terwedo Manufacturing Company, Oshkosh, Wisconsin; Fedders Manufacturing Company, 5101 West Madison Street, Chicago, and Faber-Schneider Radiator Company, 2317 South Wabash Avenue, Chicago.

Nickel Plated Brass Tea Kettle Ears

From The Koeberle-Heyer Company, Inc., Sumner, Iowa.

Please inform us where we may purchase nickel plated brass tea kettle ears.

Ans.—Berger Brothers Company, 237 Arch Street, Philadelphia, Pennsylvania.

Small Friction Drive and Magnets

From F. E. Grunwaldt, 164 Gales, Seattle, Washington.

Please tell me who makes small friction drive for 1/6 horsepower motor, also where I can buy magnets.

Ans.—General Electric Company, 230 South Clark Street, Chicago.

Special Metal Work

From Brizee Metal Works, 227 Second Avenue East, Twin Falls, Idaho.

Can you tell us the name of a firm doing special metal work such as a strip, who would make up a strip 2 1/4 inches wide, 24 inches long with clips of some sort to hold together 9 small cards?

Ans.—Chicago Metal Manufacturing Company, 3724 South Rockwell Street, Chicago, Illinois.

Coal Stokers for Warm Air Furnaces

From Koons Furnace Company, Danville, Illinois.

Will you kindly advise us who makes coal stokers for warm air furnaces?

Ans.—Domestic Stoker Company, 7 Dey Street, New York City, and Auburn Stoker Sales Corporation, 360 North Michigan Avenue, Chicago.

Stainless Steel Sheets

From Adkins Roofing Company, 86 Zane Avenue, Wheeling, West Virginia.

We should like to know the name of the concern that makes stainless steel sheets.

Ans.—Allegheny Steel Company, Brackenridge, Pennsylvania.

Wire Guards

From Bodlak's Tin Shop, 219 Fifth Street, Devils Lake, North Dakota.

Can you tell us who makes wire guards to be placed over skylights as a protection to the glass from hailstorms?

Ans.—F. P. Smith Wire and Iron Works, Clybourn and Fullerton Avenues, and Chicago Wire, Iron and Brass Works, 2415 Belmont Avenue; both of Chicago, Illinois.

Larson's Shoot-a-Lite Safety Gas Lighter

From H. C. Timme, 2627 Court Street, Pueblo, Colorado.

Will you please tell me who makes the Larson's Shoot-a-Lite Safety Gas Lighter?

Ans.—Matchless Utilities Company, 6250 St. Lawrence Street, Chicago.

Stove Bolts

From Lincoln Stove Repair Company, Lincoln, Nebraska.

Please advise us who makes stove bolts.

Ans.—The Kirk-Latty Company, Cleveland, Ohio.

Small Revolving Window Fan

From McKay Brothers Hardware Company, Evanston, Illinois.

Can you tell us who makes a small revolving window fan without a motor—about 6 or 7 inches?

Ans.—Akrat Ventilators, Inc., 228 North La Salle Street, Chicago.

Tinned Wire Shelves

From Howard E. Williams, Colchester, Illinois.

Please tell me who makes tinned wire shelves such as are used in refrigerators.

Ans.—Union Steel Products Company, Albion, Michigan; F. P. Smith Wire and Iron Works, Clybourn and Fullerton Avenues, Chicago, and Peerless Wire Goods Company, 6 North Michigan Avenue, Chicago.

Porcelain Enamel Table Tops

From Charles B. Day, 125 West Locust Street, Fairbury, Illinois.

Kindly inform me who makes porcelain enamel kitchen table tops.

Ans.—Benjamin Electric Manufacturing Company, 120 South Sangamon Street, Chicago, Illinois; Ingram-Richardson Manufacturing Company, Frankfort, Indiana; Vitreous Steel Products Corporation, 6705 Grant Avenue, Cleveland, Ohio, and Vitreous Enameling Corporation, Cleveland, Ohio.

Burial Casket Handles and Trimmings

From Studer and Fetzer, Pigeon Run Road, R. F. D. No. 5, Massillon, Ohio.

Will you please advise us who makes burial casket handles and outside trimmings.

Ans.—Parson Hardware Company, Belvidere, Illinois; Western Casket Hardware Company, Elgin, Illinois; Merit Hardware Manufacturing Company, 2125 West Rice Street, Chicago; Crane and Breed Manufacturing Company, Cincinnati, Ohio, and Casket Hardware Manufacturing Company, Detroit, Michigan.

Pressed Galvanized Can Bottoms

From The Koeberle-Heyer Company, Inc., Sumner, Iowa.

We should like to know who makes pressed galvanized can bottoms.

Ans.—Sundstrom Pressed Steel Company, 8028 South Chicago Avenue, Chicago.

Weir Exhibit Omitted from List Last Week—We're Sorry!

In the list of exhibitors at the Wisconsin Hardware Show given in last week's issue of AMERICAN ARTISAN the name of The Meyer Furnace Company was inadvertently omitted. We are very sorry that this omission occurred and want to state here that James Flavelle and Harry Jackson were very much in evidence with a complete line of Weir products at this show.

Exhibitors at Nebraska Retail Hardware Association, February 5, 6, 7 and 8

Fox Furnace Company, Elyria, Ohio. Sunbeam furnaces and circulators.—W. H. Reed.

Munroe and Son Furnace & Supply Company, Omaha, Nebraska. Robinson furnaces (Chicago), Success heaters, Independent registers, A-C Automatic fans, Automatic humidifiers, and products of Chas. Johnson Company, Peoria, Illinois.—E. A. Munroe, E. H. Nelson, Will Lewis, W. H. Huston.

Hudson Manufacturing Company, Minneapolis, Minnesota. Sprayers, hog troughs and pans,

poultry equipment.—G. F. Mills, Omaha branch manager, and William Harmon.

Lennox Furnace Company, Marshalltown, Iowa. Furnaces.—C. O. Norland, C. E. Doughty, E. L. Carstensen, Roy DuCharme.

Milcor Making Extensive Additions to Eastern Plant at Canton, Ohio

L. Kuehn, president and treasurer of the Milwaukee Corrugating Company, Milwaukee, Wisconsin, has announced that extensive additions are now being made to their eastern plant, The Eller Manufacturing Company, Canton, Ohio. The additional investment for buildings and machinery will amount to \$200,000.

This construction involves more than 50,000 square feet of floor space, providing increased manufacturing facilities, which have become necessary properly to service and take care of the increased demands of their eastern, southern, and export trade for the Milcor line of firesafe sheet metal products.

Mr. Kuehn says relative to building operations: "A period of stable building volume is most apparent during 1929."



Minnesota Retail Hardware Association Convention, Feb. 19, 20, 21, 22, 1929, at Minneapolis Municipal Auditorium. Chas. H. Casey, manager-treasurer, Nicollet at Twenty-fourth Street, Minneapolis.

Michigan Sheet Metal & Roofing Contractors' Association, Flint, Michigan, March 5, 6, 7, 1929. Frank Ederle, 1121 Franklin Street, S. E., Grand Rapids, Michigan, Secretary.

Pennsylvania Sheet Metal Contractors' Association, Hotel Brunswick, Lancaster, Pennsylvania, April 2, 3 and 4, 1929. Secretary, W. F. Angermeyer, 7253 Frankstown Avenue, Pittsburgh, Pa.

National Warm Air Heating Association annual meeting, Claypool Hotel, Indianapolis, April 9, 10, 11, 1929. Secretary Allen W. Williams, 174 East Long Avenue, Columbus, Ohio.

Illinois Sheet Metal Contractors' Association, April 16, 17, 18, 1929, Peoria, Illinois. Secretary, Ralph W. Poe, 44 White Court, Canton, Illinois.

National Association of Sheet Metal Contractors of the United States, Lord Baltimore Hotel, Baltimore, Maryland, June 3 to 7, 1929. Secretary, W. C. Markle, 336 Fourth Avenue, Pittsburgh, Pennsylvania.

RANDOM NOTES AND SKETCHES

H. T. Richardson, vice president of Sales, Richardson & Boynton Company, New York, wants to play golf. He wants to play golf bad enough to want to have another shot at the Sidney Arnold Loving Cup, which was so cruelly wrested from himself and Art Lamneck last year by Les Taylor and Jack Stowell. I received a letter from him the other day to this effect:

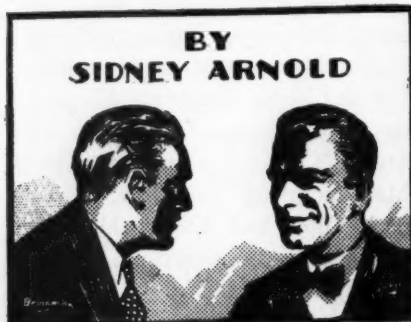
"I note in your "Random Notes and Sketches" that there seems to be some discussion about Art Lamneck and "Judge" Watson challenging Les Taylor and Jack Stowell for the Sidney Arnold Loving Cup.

"As one-half of last year's team, I want to say that I consider it my privilege, with my partner, to have the first crack at this cup. Much as I love Judge Watson, I have had to hang my head in shame all year since our defeat and, the last opportunity I had of talking with Art Lamneck, we both signed the pledge to work for the cup again and have been practicing diligently all winter.

"I am about to issue a formal challenge of elimination to Judge Watson as to which one of us shall be the other member of Art's team. As a matter of fact, if Art and I cannot beat Les Taylor and Jack Stowell this year, we are going to give up golf and take up ping pong anyway.

"Neither of us want to make any alibi, but if you will recall the last year's game, you will remember that if Art Lamneck hadn't broken some of his clubs, cut his hand, or if my flask had been a little larger or the gallery smaller (I have yet to decide which), we would have pulled ourselves out of the hole we were in and won the match. (The flask was so big that I could hardly get into my overcoat pocket.—Sidney.)

"Art and I feel absolutely that



there are no two people in our association that can beat us at golf. That is our story and that is what we stick to.

"I am writing my partner today asking him as captain of our team to please issue, through your famed columns, a very definite and clear cut challenge."

* * *

Jones came home very early in the morning and terribly under the influence of his bootlegger.

Mrs. Jones had delivered many a lecture on previous occasions and he must avoid another. He crept in quietly; light in the library—the very thing—he would go in and pick up a book and be reading if she came down.

He fumbled around and found a pile of books in the corner on the floor. He would take that big one way at the bottom of the pile. He tugged away and finally got it out, opened it up and seated himself comfortably.

In a few moments Mrs. Jones came down the stairs and stood looking at him through the doorway.

"What are you doing there?"

"Why, dearie, I've been reading."

"Oh, you darned old fool! Shut



up that suitcase and come on to bed."

* * *

Doctor: "Sambo, for your trouble you'll have to take a series of electric baths."

Sambo: "No, suh; no, suh; I don't take ob dem elektrik baths."

Doctor: "Why not, Sambo? They are exactly what you need."

Sambo: "Well, suh, mah brudder got drowned up at Sing Sing taken dem elektrik baths."

* * *

Guide (to tour party of sheet metal men going through the Ford plant: "Do you know what would happen if that man on the right side ever missed a day's work?"

William D. Martin, Jr., American Brass Company: "No, what would happen?"

Guide: "Twenty-two hundred and sixty-one Fords would go out of the factory without springs."

Mr. Martin: "Say, mister, that fella's been sick a lot, ain't he?"

* * *

Jimmie: "Every time I kiss you it makes me a better man."

Ethel: "Well, you needn't try to get to heaven tonight."

* * *

"How many times must I tell you I won't marry you?" demanded the girl who knew her own mind.

"One is enough, if you mean it!" retorted the discarded lover. Good-bye!"

"Wait a minute. What's your hurry?"

* * *

Nice Old Lady: "Don't you know you shouldn't play strip poker?"

Sweet Young Thing: "Oh, it's perfectly all right. It's not really gambling."

"What?"

"No, you see we get our clothes back."

Ingot Rate for February Bids Fair to Reach Highest Peak in History

Pig Iron Market Is Firm—Large Buying Forces Copper Prices Up

FEBRUARY'S steelmaking rate indicates not only another monthly record but also brings within reach the highest daily ingot rate in history.

January's daily ingot basis, which is now disclosed as a record for that month, was 4 per cent greater than December's and if February can maintain this rate of increase even last October's alltime ingot record will fall.

Thus far in the month the trend of operations in all districts except Birmingham, where two steelworks stacks have been banked, has been upward.

For the first time since the war a scarcity of semifinished steel at Pittsburgh, Youngstown and Chicago—particularly the latter two districts—is handicapping finishing mills.

Delivery of steel generally has fallen farther behind this week despite record-breaking production.

Their improved position prompts steelmakers to attempt to put prices on a more remunerative basis. Hot strip, following the lead of cold rolled, has been advanced \$2 per ton.

Some independent sheetmakers are asking \$2 per ton more for all grades save autobody for the remainder of the quarter.

Other sheetmakers, most of whom are booked up for the quarter, have taken no action.

Pig Iron

At Pittsburgh the pig iron market is presenting an even tenor, with little new business to feature it. Producers report continued steady shipments, with gradual depletion of stocks of some grades.

Furnace backlogs in certain instances are satisfactory, but in others are declining and fresh orders are needed to replace tonnage that is lacking.

Absence of new general inquiries is not taken as an indication of a dull market, as contracts of some consumers extend past the first quarter, and others are placing small tonnages from time to time, instead of buying far ahead.

At Birmingham continued slowness is noted in pig iron buying. Delivery of iron is a little improved, one concern reporting more iron shipped than produced.

Foundry iron continued \$16.50 base Birmingham.

At Chicago considerable pig iron tonnage for second quarter is being closed quietly. Several large orders now are being negotiated.

Weakness in the valley market is reflected in Indiana, but \$20, Chicago, is firm for the base grades. Stronger conditions in the Buffalo market indicate lighter boat shipments to the Chicago and Milwaukee district next season.

Zinc

Zinc is unchanged with light business going. Prime western continues to be quoted 6.35 cents, East St. Louis, and 6.70 cents, New York. Brass special is held at 6.45 cents, East St. Louis, and high grade at 7.75 cents, delivered.

The remarkable uniformity of prime western prices through January was shown in the recent report by the American Zinc institute that all sales made last month for delivery within the month were at 6.35 cents, E. St. Louis.

On futures some sales apparently were made at a slight premium, as the average reported was 0.002 higher than spot.

Tin

Tin prices were stronger on Wednesday, February 13. Spot Straits is quoted 49.62½ cents to 49.75 cents on both spot and futures compared with 49.62½ cents at the close of Monday, the last preceding day

of trading. The market is quiet. Ninety-nine per cent tin is quoted 48.75 cents.

Copper

Prices on copper advanced ¼-cent twice in the past week to 18.00 cents, Connecticut, with the usual differentials for Midwest and Export.

Users are similarly well covered, and so the domestic market has been rather quiet in the past few days. Export sales have continued active.

Lead

At St. Louis the lead market appears stronger from week to week. Demand is very active, and with supplies of moderate size, sellers are not certain where they are to get metal for deliveries.

Consumption holds at a high rate and present indications are for a further increase in needs of principal users during the next few months. Virtually all classes of consumers have figured in recent buying, and in general their stocks are light.

A fair volume of inquiry has appeared for April, but producers are not anxious to sell that far ahead.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$31.00; Commercial 45-55, \$28.50; plumbers', \$26.00; all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.00 to \$16.50; old iron axles, \$28.75 to \$29.25; No. 1 wrought iron, \$14.00 to \$14.50; No. 1 cast, \$16.00 to \$16.50, all per net tons. Prices for non-ferrous metals are quoted as follows per pound: Light copper, 11 cents; zinc, 3 cents; cast aluminum, 12 cents.

\$300,000.00

to help you sell More Galvanized Roofing in 1929

\$300,000.00 will be spent in 1929 by the Sheet Steel Industry to promote the use of galvanized sheets in the farm market.

Advertisements similar to the one on the facing page will appear in leading farm publications covering every part of the United States.

This will mean a total of over twenty-seven million individual advertising messages telling your customers about the products you sell.

Special effort will be concentrated on Galvanized Roofing. Farmers will be told of the extra protection which only this roofing can give.

Will you do your part to make this expenditure a profitable investment for both of us?

Will you follow up the customers that our advertising is reaching and tell them again the advantages of Galvanized Roofing?

You will sell roofing to every farmer who is in the market if you convince him of these facts—

1. That no building with a properly grounded galvanized roofing has, as far as we can find out, ever been destroyed by lightning.
2. That no better lightning protection than properly grounded galvanized roofing can be secured at any price.
3. That the cost of the best quality galvanized roofing is lower than the

cost of an inferior roof properly protected against lightning.

4. That the cost per year of service for galvanized roofing is lower than for any other roof.

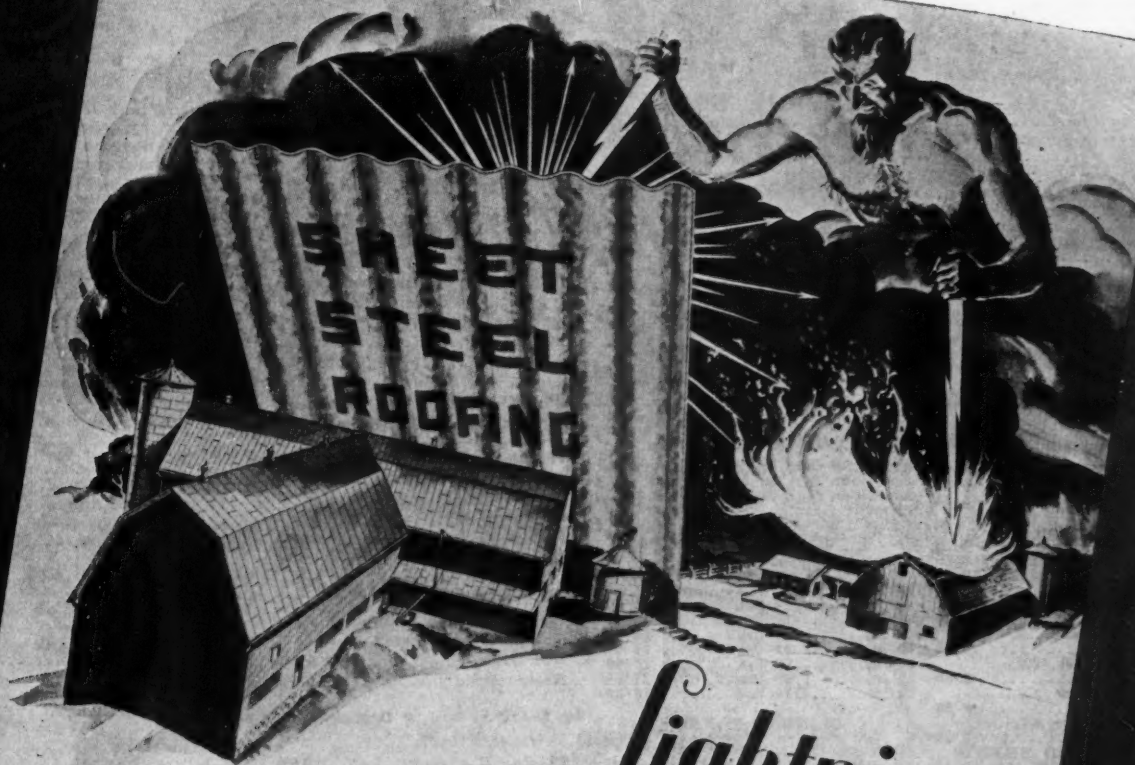
5. That galvanized roofing and siding protect from flying embers and also act as a blanket to confine fire to the building in which it originates.

And don't forget to remind every prospective customer that farm fires destroyed 3,500 lives and \$150,000,000 in farm property in 1928.

SHEET STEEL TRADE EXTENSION COMMITTEE
Terminal Tower Building, Cleveland, Ohio



Mention AMERICAN ARTISAN in your reply—Thank you!



Lightning HAS NEVER DESTROYED A BUILDING ROOFED WITH SHEET STEEL*

*No building with a properly grounded galvanized sheet steel roof has ever been destroyed by lightning as far as we have been able to determine. The best method of grounding steel roofs is illustrated in a 92-page fully illustrated bulletin issued by the Sheet Steel Trade Extension Committee. This bulletin, which is sent free on request, also contains detailed descriptions of the best method of applying all kinds of steel roofs.

LIGHTNING, the destroyer — enemy of every man — is powerless against buildings roofed with galvanized sheet steel and properly grounded. Thunderbolts, directed at well-stored barns and isolated homes, are turned aside and dissipated harmlessly into the earth.

Agricultural experts agree that no better protection against this menace from the skies can be secured at any price. Yet this additional security for property and lives costs nothing, for the cost of the best quality steel roofing is lower than that of any other type of roof which will give comparable service.

Not only is steel the safest and most economical material for protecting the larger farm buildings, but it is equally safe and economical for smaller buildings such as poultry houses, machinery sheds, smoke houses and garages — buildings that too often are roofed with inferior material which must be replaced every few years.

A properly maintained steel roof will last as long as the building it protects. Complete information on all types of steel roofing can be obtained by writing to the Sheet Steel Trade Extension Committee, Terminal Tower Building, Cleveland, Ohio.

SHEET STEEL

Lightning Proof ROOFING

THIS ADVERTISEMENT will appear in the February Country Gentleman, February 23rd Progressive Farmer, March Successful Farming and March Capper's Farmer, with a combined circulation of more than four million copies.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

PIG IRON

Chicago Fdy.,	
No. 2	\$20 00
Southern Fdy. No. 2	22 51 to 23 01
Lake Superior Charcoal ..	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets ..	\$22 50
IX 20x28	25 50
IXX 20x28 56 sheets ..	14 50
IXXX 20x28	15 50
IXXXX 20x28	17 00

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IC 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IC 20x28, 20-lb. 112 sheets	20 25
IV 20x28, 20-lb. 112 sheets	23 00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 20
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC	12 75
20x28	12 75
Cokes, 135 lbs., base, IX	14 75
20x28	14 75
Cokes, 155 lbs., base, 2X,	8 50
56 sheets	8 50
Cokes, 175 lbs., base 3X,	9 25
56 sheets	9 25
Cokes, 195 lbs., base 4X,	10 25
56 sheets	10 25
BLUE ANNEALED SHEETS	
Base 10 ga. ....per 100 lbs.	\$3 35
"Armco" 10 ga. ....per 100 lbs.	4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 60
No. 22	per 100 lbs. 3 75
No. 24	per 100 lbs. 3 80
No. 26	per 100 lbs. 3 90
No. 28	per 100 lbs. 4 05
No. 30	per 100 lbs. 4 20
No. 32	per 100 lbs. 4 30

"ARMCO" GALVANIZED

"Armco" 24. ....per 100 lbs.	\$6 15
------------------------------	--------

GALVANIZED

No. 16	per 100 lbs. \$4 15
No. 18	per 100 lbs. 4 30
No. 20	per 100 lbs. 4 45
No. 22	per 100 lbs. 4 50
No. 24	per 100 lbs. 4 65
No. 26	per 100 lbs. 4 80
No. 28	per 100 lbs. 5 00
No. 30	per 100 lbs. 5 15
No. 32	per 100 lbs. 5 35

BAR SOLDER

Warranted	
50x50	per 100 lbs. \$31 00
Commercial	
45-55	per 100 lbs. 28 50
Plumbers	per 100 lbs. 26 00

ZINC

In Slabs	\$ 7 25
SHEET ZINC	
Cask Lots (600 lbs.)	\$11 25
Sheet Lots	12 25

BRASS

Sheets, Chicago Base	23 1/2 c
Mill base	22 1/2 c
Tubing, brazed base	27 1/2 c
Wire, base	23 c
Rods, base	20 1/2 c

COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless base	28 1/2 c
Wire, plain rd., 8 B. & S. Ga.	
and heavier	24 1/2 c

LEAD

American Pig	\$7 50
Bar	8 50

TIN

Pig Tin	per 100 lbs. \$53 00
Bar Tin	per 100 lbs. 50 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16" .....	.6c per lb.
Roll board .....	.6 1/2 c per lb.
Mill board 3/32 to 1/2" .....	.5c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Furnace Pipe Cleaning	
Bristle with handle each	\$0 75
Flue Cleaning	
Steel only, each	1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz.	Price Doz.
4 in.	21 lbs. ....\$11 00
6 in.	24 lbs. ....11 50
7 in.	30 lbs. ....13 50
8 in.	33 lbs. ....15 00
9 in.	51 lbs. ....16 50
10 in.	56 lbs. ....18 00
12 in.	66 lbs. ....22 00
14 in.	110 lbs. ....36 00

CLINKER TONGS

Each	\$1 50
------------	--------

CLIPS

Damper	
No-Rivet Steel, with tail	
pieces, per gross	\$9 50
Rivet Steel, with tail	
pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering

3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.	\$1 60
8 inch, each 25c, doz.	2 20
9 inch, each 30c, doz.	2 60
10 inch, each 32c, doz.	2 80
Smoke Pipe	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	3 00
10 inch, doz.	3 75
12 inch, doz.	4 50

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1	
and No. 2 Check	
Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	3 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated 75 & 10%	
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. Terne Steel

Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2"	45%
--------------------------	-----

Copper

16 oz., all designs	50%
---------------------------	-----

Zinc—

All styles	60%
------------------	-----

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge. Doz.	
5-inch	\$1 15
6-inch	1 25
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5-inch	\$1 60
6-inch	1 75
7-inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12 1/4% (100 rods) ..	\$28 68
1948-6-14 1/4% (100 rods) ..	43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Pa.
No. 02 Gasoline Torch, 1 qt.	\$ 5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 60
No. 110 Automatic Gas Soldering Furnace	10 50
Quick Meal Stove Co.	
Vesuvius, F. O. B. St. Louis 30% (Extra Disc. for large quantities.)	

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$3 00
Tubs (Galv. after made), No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, all brackets	37%
Single Strength, B, all brackets	38-5%
Double Strength, A, all brackets	37%
Double Strength, B, all brackets	38-5%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	25%
Milcor Triplex Wire	10%
Eaves Trough	
Milcor Steel (galv. after forming) List	plus 12 1/4%
Milcor Selflock H. T. Wire, List	plus 50%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick ..	15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each ..	50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$3 25

MITRES

Galvanized steel mitres	
28 Ga.	70
26 Ga.	60-30

NAILS

Cut Steel, base	\$4 00
Wire	
Common	\$3 10
Cement Coated	3 10

Continued on page 124)



Homeward Bound—

But "home" to what? A little cabin built of rough-hewn timbers through which the melting snows slowly seeped in the winter—a little cabin that might be demolished in seconds by a forest fire in the summer.

"Home" never meant comfort or safety to these old pioneers of what is now the "West that Inland Serves".

But today—in these very same regions—buildings of every description are covered with INLAND COPPER ALLOY STEEL SHEETS. Here is a material which offers complete protection against fire and lightning—a material which is unsurpassed in resisting rust and corrosion.

Send for Our Descriptive Booklet and Read the Facts

BRANCH
OFFICES
KANSAS CITY
MILWAUKEE
ST. LOUIS
ST. PAUL

INLAND STEEL COMPANY
38 South Dearborn Street
Chicago

WORKS
INDIANA HARBOR
INDIANA
CHICAGO HEIGHTS
ILLINOIS
MILWAUKEE
WISCONSIN

SHEETS ~ BARS ~ PLATES ~ SHAPES ~ RAILS ~ TRACK ACCESSORIES ~ RIVETS ~ BILLETS

Say you saw it in AMERICAN ARTISAN—Thank you!

ADVERTISERS' INDEX

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American Brass Co.....	—	Lennox Furnace Co.....	—
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PASTE		RIDGE ROLL	
Asbestos Dry Paste:		Galv., Plain Ridge Roll,	
200-lb. barrel	\$14 00	b'dld	75-15-5%
100-lb. barrel	7 50	Galv., Plain Ridge Roll	
50-lb. pail	4 25	crated	75-15%
10-lb. bag	1 00		
5-lb. bag	55		
2½-lb. cartons	25		
POKERS, FURNACE		SCREWS	
Each	\$0 75	Sheet Metal	
POKERS, STOVE		7, ½x½, per gross	\$0 52
Nickel Plated, coil handles, per doz.	1 10	No. 10, ¾x3/16, per gross ..	62
W'r't Steel, str't or bent, per doz.	\$0 75	No. 14, ¾x¾, per gross..	53
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$22 00
Cor. Rd., Plain Rd., or Sq.		Lennox Throatless	
Galvanized		No. 18	35%
Crated and nested (all gauges)	75-7¼%	Shear blades	10%
Crated and not nested (all gauges)	75-2¼%	(f. o. b. Marshalltown, Iowa)	
Furnace Pipe		SHIELDS, ADJUSTABLE RADIATOR	
Double Wall Pipe and Fittings	60%	No. 1 "Gem" 11" to 17"....	30%
Single Wall Pipe, Round Galvanized Pipe	60%	No. 2 "Gem" 14" to 24"....	30%
Galvanized and Tin Fittings	60%	No. 3 "Gem" 35" to 65"....	30%
Lead		SHOES	
Per 100 lbs.	\$12 50	Galv. 23 Gauge, Plain or corrugated round flat crimp..	60%
Stove Pipe		26 gauge round flat crimp..	45%
"Milcor" "Titelock" Uniform Blue Stove		24 gauge round flat crimp..	15%
23 gauge, 5 inch U. C. nested	11 00	SNIPS, TINNERS	
23 gauge, 6 inch U. C. nested	12 00	Clover Leaf	40 & 10%
23 gauge, 7 inch U. C. nested	14 00	National	40 & 10%
30 gauge, 5 inch U. C. nested	10 25	Star	50%
30 gauge, 6 inch U. C. nested	11 00	Milcor	Net
30 gauge, 7 inch U. C. nested	13 00	SQUARES	
T-Joint Made up		Steel and Iron	Net
6-inch, 22 ga...per doz. \$ 40		(Add for bluing \$3 per doz. net)	
All Zinc		Mitre	Net
No. 11, all styles	60%	Try	Net
PULLEYS		Try and Bevel	Net
Furnace Tackle...per doz. \$0 85		Try and Mitre	Net
.....per gro. 8 50		Fox's	per doz. \$6 00
Furnace Screw (enameled)	75	Winterbottom's	10%
PUTTY		STOPPERS, FLUE	
Commercial Putty, 100-lb. Kits	\$3 50	Common	per doz. \$1 10
QUADRANTS		Gem, No. 1	per doz. 1 10
Malleable Iron Damper.....	10%	Gem, flat, No. 3....per doz.	1 00
REDUCERS—Oval Stove Pipe		VENTILATORS	
7-8, 23-gauge, 1 doz. in carton	\$2 00	Standard	30 to 40%
REGISTERS AND BORDERS		WIRE	
Baseboard, Floor and Wall		Black annealed wire, No. 9, per 100 lbs.	\$3 30
Cast Iron	20%	Galvanized barb wire, per 100 lbs.	3 90
Steel and Semi-Steel	33½%	Cattle Wire—galvanized catch weight spool, per 100 lbs..	3 80
Baseboard, 1 piece	33½-20%	Galvanized Plain Wire, No. 9, per 100 lbs.	3 25
Baseboard, 2 piece	33½%		
Wall	33½%		
Adjustable Ceiling Ventilators	33½%		
Register Faces—Cast and Steel			
Japanned, Bronzed and Plated, 4x6 to 14x14....	33½%		
Large Register Faces—Cast, 14x14 to 38x42	50%		
Large Register Faces—Steel, 14x14 to 38x42	60%		
Ventilating Register			
Per gross	9 00		
Small, per pair	30		
Large, per pair	50		

Cut your sheets quicker,
easier and better with—

MARSHALLTOWN Throatless Shears

CUTTING your sheets accurately with speed increases your profit. This No. 18 Marshalltown Hand Power Shear will pay for itself in no time at all—its cost is so low you will be surprised.



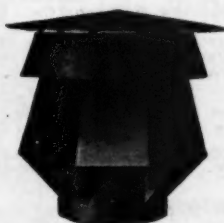
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every shop can use it—

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VENTILATORS**

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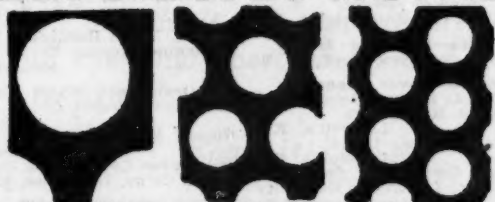
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and always give satisfaction

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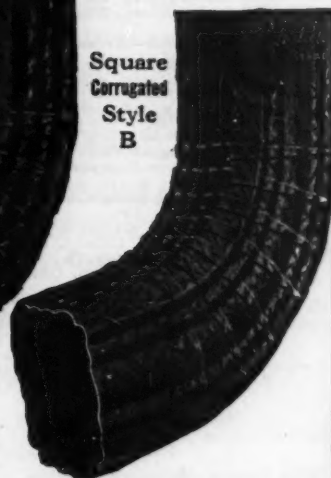
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P. O. Station B, Cincinnati, O.

Square
Corrugated
Style A



Square
Corrugated
Style
B



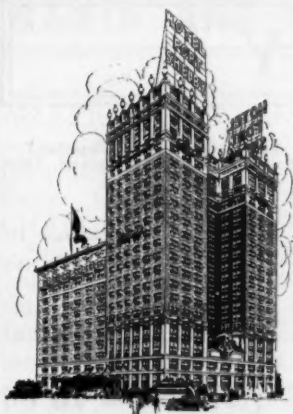
Not made lighter than
28 ga. or 16 oz. copper

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- Bolts—Stove.**
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Lamson & Sessions Co.,
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Dreis & Krump Mfg. Co.,
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Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
- Brakes—Cornice.**
Dreis & Krump Mfg. Co.,
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Copper & Brass Research As-
sociation,
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- Cans—Garbage.**
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- Ceilings—Metal.**
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Lewisburg, Pa.
- Clinker Tonga.**
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- Copper.**
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Waterbury, Conn.
Copper & Brass Research As-
sociation,
New York
- Cornices.**
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Thermo-Control Regulator Co.,
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- Drive Screws—Hardened Metallic.**
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- Eaves Trough.**
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Berger Co., L. D.,
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Lupton's Sons Co., David,
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New Jersey Zinc Sales Co., The,
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Wheeling Corrugating Co.,
Wheeling, W. Va.
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Lupton's Sons Co., David,
Philadelphia, Pa.
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- Wood Faces—Warm Air.**
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American Wood Register Co.,
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Milwaukee Corrugating Co.,
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- Fittings—Conductor.**
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Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Flanges.**
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Chicago, Ill.
- Fittings—Steel Pipe.**
Chicago Metal Mfg. Co.,
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- Flue Thimbles.**
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Connors Paint Mfg. Co., Wm.,
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Milwaukee Corrugating Co.,
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Pittsburgh, Pa.
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- Furnace Coloring (Enamel).**
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- Furnace Fans.**
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Canton Furnace & Mfg. Co.,
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Massillon, Ohio
Warm Air Furnace Fan Co.,
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Williamson Heater Co.,
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- Furnace Regulators.**
National Regulator Co.,
Chicago, Ill.
H. M. Sheer Co.,
Quincy, Ill.
Thermo-Control Regulator Co.,
Youngstown, Ohio
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Foundries Co., Cleveland, Ohio
Milwaukee Corrugating Co.,
Milwaukee, Wis.
- Furnaces—Gas.**
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Mueller Furnace Co., L. J.,
Milwaukee, Wis.
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Brillion Furnace Co., Brillion, Wis.
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Dowagiac, Mich.
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Farris Furnace Co.,
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Monroe, Mich.
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Hall-Neal Furnace Co.,
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Homer Furnace Co.,
Coldwater, Mich.
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Liberty Foundry Co.,
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Magirl Foundry & Furnace Co.,
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Marshall, Mich.
Meyer Furnace Co., The, Peoria, Ill.
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Peerless Foundry Co.,
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Chicago, Ill.
Rybolt Heater Co., Ashland, Ohio
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Standard Furnace & Supply Co.,
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Standard Foundry & Furnace Co.,
De Kalb, Ill.
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Thatcher Co.,
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ilating Co.,
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Wise Furnace Co.,
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- Gas (Oxygen).**
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New Britain, Conn.
Independent Reg. Co.,
Cleveland, Ohio
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- Grilles—Stove Front.**
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
- Guards—Machine and Belt.**
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Berger Bros. Co., Philadelphia, Pa.
- Handles—Soldering Iron.**
Hyro Mfg. Co., New York, N. Y.
- Hangers—Eaves Trough.**
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- Heat Regulation Systems.**
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Thermo-Control Regulator Co.,
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Mueller Furnace Co., L. J.,
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Waterman-Waterbury Co.,
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Meyer Furnace Co., The,
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Chandler Pump Co.,
Cedar Rapids, Iowa
L. J. Mueller Furnace Co.,
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Salada Mfg. Co.,
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- Machinery—Culvert.**
Bertsch & Co.,
Cambridge City, Ind.
- Machines—Tin Smith's.**
Bertsch & Co.,
Cambridge City, Ind.
- Dreis & Krump Mfg. Co.,**
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Interstate Machinery Co.,
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Chicago, Ill.
Maplewood Machinery Co.,
Chicago, Ill.
Marshalltown Mfg. Co.,
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- Mandrels.**
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- Miters.**
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- Miters—Eaves Trough.**
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McIlvaine Burner Corp.,
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- Paint.**
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
- Patterns—Furnace and Stove.**
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Quincy Pattern Co.,
Quincy, Ill.
Vedder Pattern Works,
Troy, N. Y.

(Continued on page 128)

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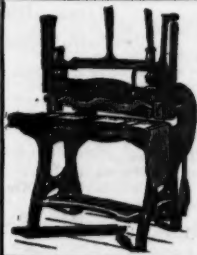
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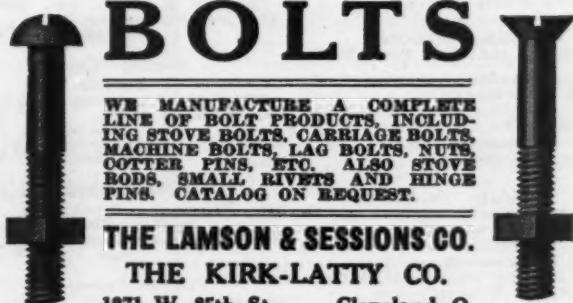
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A child can work them

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(Continued from page 126)

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Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Mueller Furnace Co., L. J.,
Milwaukee, Wis.
Peerless Foundry Co.,
Indianapolis, Ind.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Standard Furnace & Supply Co.,
Omaha, Neb.

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Milwaukee Corrugating Co.,
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Philadelphia, Pa.
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Chicago, Ill.
Dieckmann Co., Ferdinand,
Cincinnati, Ohio
Friedley-Voshardt Co.,
Chicago, Ill.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
New Jersey Zinc Sales Co., The,
New York, N. Y.
Wheeling Corrugating Co.,
Wheeling, W. Va.

Presses.

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Punches.

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Interstate Machinery Co.,
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La Salle Machine Works,
Chicago, Ill.
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Punches—Combination Bench and Hand.

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Chgo., N. Y., St. L., Det., Cleve.

Punches—Hand.

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Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Putty—Stove.

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

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Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Radiators—Shields.

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Ranges—Combination Gas & Coal.

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St. Louis, Mo.
Thatcher Co.,
Newark, N. J.

Ranges—Gas.

Quick Meal Stove Co.,
St. Louis, Mo.

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Indianapolis, Ind.

Registers—Warm Air.

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Forest City-Walworth Run
Foundries Co., Cleveland, Ohio
Hart & Cooley Co.,
New Britain, Conn.

Independent Register & Mfg. Co.

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Columbus, Ohio

Meyer & Bro. Co., F., Peoria, Ill.

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Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Rock Island Register Co.

Rock Island, Ill.
Stearns Register Co.,
Detroit, Mich.

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United States Register Co.,
Battle Creek, Mich.

Waterloo Register Co., Waterloo, Iowa

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American Wood Register Co.,
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Auer Register Co., Cleveland, Ohio
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Mueller Furnace Co., L. J., Milwaukee, Wis.

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Chicago, Ill.
Thermo-Control Regulator Co.,
Youngstown, Ohio

Ridging.

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Philadelphia, Pa.

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Lamson & Sessions Co.,
Cleveland, Ohio

Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

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Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio

Rolls—Forming.

Bertsch & Co.,
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Roofing Cement.

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Roof—Flashing.

Milwaukee Corrugating Co.,
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Roofing—Iron and Steel.

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Central Alloy Steel Corp.,
Massillon, Ohio

Friedley-Voshardt Co., Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Wheeling Corrugating Co., Wheeling, W. Va.

Roofing—Tin.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Taylor Co., N. & G.,
Philadelphia, Pa.

Wheeling Corrugating Co., Wheeling, W. Va.

Roofing Tools.

Wm. Elermann, Brooklyn, N. Y.
New Jersey Zinc Sales Co., The,
New York, N. Y.

Rubbish Burners.

Hart & Cooley Co.,
New Britain, Conn.

Schools—Sheet Metal Pattern

St. Louis Technical Institute,
St. Louis, Mo.

Schools—Warm Air Heating.

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Screws—Hardened Metallic Drive.

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Screens—Perforated Metal.

Harrington & King Perforating
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Shears—Hand and Power.

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Marshalltown Mfg. Co.,
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Taylor Co., N. & G., Philadelphia, Pa.

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Sheets—Tin.

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Sheets—Zinc.

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Wheeling Corrugating Co.,
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Wanted to Buy—Plumbing, heating and sheet metal shop in good Illinois town. Address G-491, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

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Wanted—Information of a good location for tin and furnace shop in a town of from 2,000 to 8,000 anywhere, or will trade good suburban lot and nice four-room house for shop or small hardware store. Want to locate soon. Address J. M. Erpelding, R. F. D. 3, Decatur, Ill. L-492

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Situation Wanted—By first-class tinner and furnace man. Can solicit, estimate and lay out work. Married, strictly sober and reliable. Can come at once. Address D-492, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

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Wanted—First-class plumber and tinner, married, and must be sober and reliable and able to take charge of shop, handle men and do estimating. Address H-492, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

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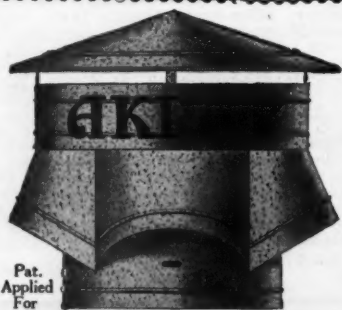
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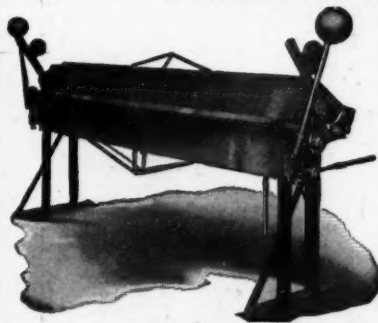
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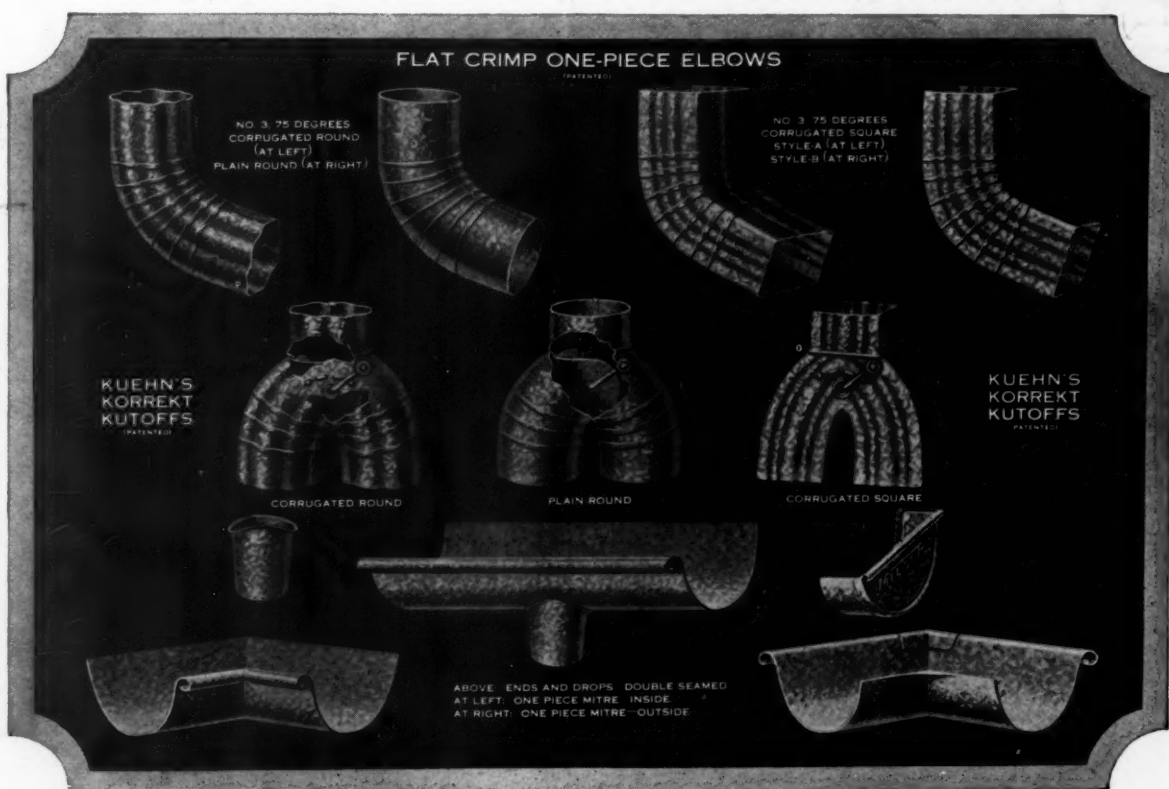
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